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PART 2 ROCKETSONDE(U) RANGE COMMANDERS COUNCIL WHITE
SANDS MISSILE RANGE NM INTER-R.. DEC 85
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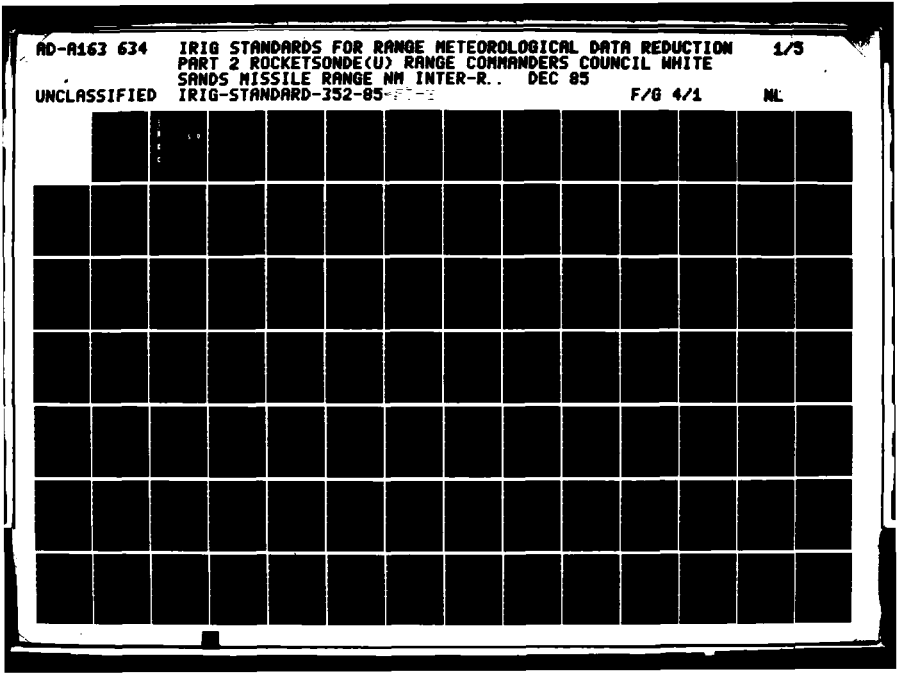

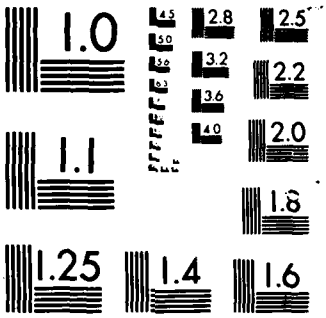

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

(12)

MG

IRIG STANDARD 352-85
(FORMERLY 108-72)

IRIG STANDARDS FOR RANGE METEOROLOGICAL DATA REDUCTION PART II - ROCKETSONDE

METEOROLOGY GROUP
RANGE COMMANDERS COUNCIL

WHITE SANDS MISSILE RANGE
KWAJALEIN MISSILE RANGE
YUMA PROVING GROUND

PACIFIC MISSILE TEST CENTER
NAVAL WEAPONS CENTER
ATLANTIC FLEET WEAPONS TRAINING FACILITY
NAVAL AIR TEST CENTER

EASTERN SPACE AND MISSILE CENTER
ARMAMENT DIVISION
WESTERN SPACE AND MISSILE CENTER
AIR FORCE SATELLITE CONTROL FACILITY
AIR FORCE FLIGHT TEST CENTER
AIR FORCE TACTICAL FIGHTER WEAPONS CENTER

IRIG STANDARD 352-85

IRIG STANDARDS
FOR
RANGE METEOROLOGICAL DATA REDUCTION

PART II - ROCKETSONDE

Prepared by

Standardization of Range Meteorological
Data Reduction Committee
Meteorology Group
Range Commanders Council

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White Sands Missile Range
New Mexico 88002-5002

TABLE OF CONTENTS

FOREWORD

The measurement of atmospheric parameters to support activities on National Ranges involves the entire meteorological environment from the most simple observation of data near the surface to the complex and difficult measurements of high altitude parameters by the use of rocket and satellite-borne instrumentation. The needs for accurate assessment of the meteorological environment in which missile and space system operations are conducted do not vary significantly from one range to another, though the frequency and quantity of observations may be considerably different. In recent years, many test programs involved the use of more than one range and required similar types of meteorological measurements from each range participating.

Measurements of the atmospheric environment are, in most cases, made by use of the same type of instruments on several ranges. To ensure the highest quality processed data, the Meteorology Group (MG) of the Range Commanders Council (RCC) is assigned the task of standardizing the methods used in the reduction of range meteorological data. A committee composed of the following members was formed to pursue a task titled "Standardization of Range Meteorological Data Evaluation":

Mr. H. C. Herring	ESMC, Chairman
Mr. F. J. Schmidlin	NASA/WFC
Mr. J. Dunaway	WSMR
Mr. E. J. Keppel	AD
Mr. J. J. Boire	WSMC
Mr. D. A. Lea	PMTC
Mr. E. E. Fisher	AFSC
Maj M. S. Noonan	AFFTC
Mr. R. W. Evert	NWC
Mr. W. Titus	NTS/DOE
Lt. M. E. Raffensburger	UTTR
Mr. E. Gibeau	KMR

The original issue of Part I of this document was published as IRIG Document 108-67 in August 1967. Both Parts I and II of the document were later published as IRIG Document 108-72. The current revision of the document is comprised of computer program documentation for two different computer systems. The program in section A is used by a large central computer to process data from either monotransponder or transponder rocketsondes. The program in section B is for the minicomputer (NOVA-3/12) of the Meteorological Sounding System (MSS) and is used for processing data from the transponder rocketsondes.

The U.S. standard computer program for the processing of Robin Falling Sphere data to calculate winds, temperatures, pressures and densities is the 1977 UDRI Robin Program. Other programs should be considered experimental and not used in lieu of the U.S. standard at the present time. In the future, providing adequate comparison experiments are conducted on some of the newly developed falling sphere programs which may show improvements over the U.S. standard,

the RCC MG committee on Standardization of Range Meteorological Data Reduction may recommend a new U.S. standard or approve other programs for use in addition to this standard for certain special applications.

Range meteorological agencies are encouraged to conform to the standard data reduction techniques and to use the formulae contained in this document in an effort to achieve the highest possible degree of standardization of meteorological data at all ranges. In addition, the committee encourages other agencies involved in machine processing of meteorological data to conform to these standardized procedures to the maximum extent possible. The committee and the MG invite and solicit comments and recommendations for improvements in the data reduction techniques and associated information contained in this document. Please forward such inputs to the Secretariat, Range Commanders Council, ATTN: STEWS-SA-R, White Sands Missile Range, New Mexico 88002-5002.

SECTION A

CDC FORTRAN V

ROCKETSONDE PROGRAM

(ROCK 3)

ABSTRACT

The Rocket Reduction Program is designed to process data acquired by standard Loki and Super Loki rocketsondes. This program accepts input data taken from the AN/TMQ-5 record and the strip chart from the MSS Tracking System, a radar and/or AN/GMD-4 Rawin Set, plus co-rawinsonde baseline data. The program processes input data and outputs as its final product rocketsonde data in readily usable tabular format; card decks, if desired; and rocketsonde message code (ROCOB).

1.0 MODULE DESCRIPTION

1.1 Program ROCK

Initializes data control arrays and controls flow of data through the subroutines.

1.2 Subroutine SIMQ

A least squares method of smoothing, provides a best fit of the components by generating a second-degree polynomial equation.

1.3 Subroutine OUTPUT

Formats the data for output.

1.4 Function WDIR

Computes wind direction in polar meteorological coordinates and windspeed in meters/second.

1.5 Function VALUE

Sets missing data to nines or interpolates for value.

1.6 Subroutine GRAVITY

Computes the ratio of the station's acceleration of gravity to gravity at 45 degrees latitude using the expression given at the top of Table 168, *SMT*, List 1968 (Bibliography Number 1).

1.7 Subroutine CHKOUT

Prints the tracking data in quality control format. Converts tracking data to Cartesian coordinates and writes data to a file.

1.8 Subroutine RD46CH

Reads the radar data and converts time to units and format consistent with TAER format.

1.9 Subroutine TMPMERG

Identifies type of temperature data, computes temperature from ordinate ratios, and combines temperature with tracking data versus time.

1.10 Subroutine INTPTMP

Identifies missing temperatures and interpolates to obtain temperatures through layers of less than 3.0 km thickness.

1.11 Subroutine MIDINT

Computes the midpoint of altitude layers and calculates uncorrected component winds and fall rates for the layers between data points. Component winds and fall velocities are assigned to the midpoint of the layers.

1.12 Subroutine BANDTC

Computes ballistic motion corrections for correcting winds according to Eddy (reference 3 in bibliography). Temperature corrections are computed for correcting temperatures as described in attachment 9 (reference 4 in bibliography).

1.13 Subroutine COMPRSR

Computes and tabulates the difference in temperatures from the co-rawinsonde observation and the rocketsonde observation in the overlap region. Chooses a baseline for barometric pressure computations.

1.14 Subroutine TWOKM

Smooths component wind layer data over 2-km thicknesses producing 2 km-mean layer winds.

1.15 Subroutine PRESCOM

Converts geometric altitude to geopotential units, computes mean virtual temperature, and computes the atmospheric pressure using a standard form of the hypsometric equation.

1.16 Subroutine ONEKILO

Rearranges data in a 1-km array and computes maximum altitude recorded by sounding.

1.17 Subroutine PLOTCH

Plots temperature versus altitude as an aid to quality control.

1.18 Subroutine PUTOUT

Outputs data to the printer file and the disk file.

1.19 Subroutine ETFORM

Formats data for entry into high altitude data formatting routine to develop data for archiving and publication.

1.20 Subroutine CODIT

Corrects units of temperature and converts other data.

1.21 Subroutine RDRAWIN

Reads co-rawinsonde data for input to the archiving and publication formatting program.

1.22 Subroutine INT

Interpolates for missing data in the input data.

1.23 Subroutine ROCOB

Encodes all rocketsonde parameters into the international ROCOB code and stores data for later transmission.

1.24 Subroutine MANDL

Mandatory data level called by ROCOB to place data level into proper place in the code.

2.0 MATHEMATICAL DESCRIPTION

2.1 Program ROCK

None

2.2 Subroutine SIMQ

None

2.3 Subroutine OUTPUT

2.3.1 Computation of the Density of Each Level

$$\varrho = 348.38 \cdot (P/T)$$

where ϱ = density (grams/cubic meter)

P = pressure of the level (millibars)

T = temperature of the level (degrees K)

2.3.2 Computation of the Velocity of Sound (Dry)

$$V_S = 331.45 \cdot (T/273.15)^{1/2}$$

where V_S = velocity of sound (meters/second)

T = temperature (degrees K)

2.3.3 Computation of Vertical Wind Shear

$$WS = [(VX - VXP)^2 + (VY - VYP)^2]^{1/2}/\Delta ALT$$

where WS = vertical wind shear

VX = corrected east-west velocity component

VY = corrected north-south velocity component

VXP = corrected previous east-west velocity component

VYP = corrected previous north-south velocity component

ΔALT = thickness of the shear layer

2.4 Function WDIR

2.4.1 Computation of Wind Direction

$$DC = \tan^{-1} (VY/VX)$$

If VX is positive,

$$D = 90 - DC$$

If VY is negative

$$D = 270 - DC$$

where D = wind direction, meteorological polar coordinates

DC = wind direction, Cartesian coordinates

VX = corrected east-west velocity component

VY = corrected north-south velocity component

2.4.2 Computation of Windspeed

$$C = (VX^2 + VY^2)^{1/2}$$

where C = windspeed (meters/second)

VX = corrected east-west velocity component

VY = corrected north-south velocity component

2.5 Function VALUE

None

2.6 Subroutine GRAVITY

2.6.1 Computation of the Ratio of Local Gravity to Gravity at 45 Degrees Latitude

$$GRAT = 1 - 0.0026373 \cdot \cos (2 \cdot \phi_L) + 0.0000059 \cdot \cos^2 (2 \cdot \phi_L)$$

where GRAT = ratio of local gravity to gravity at 45 degrees latitude

ϕ_L = station latitude (degrees)

2.7 Subroutine CHKOUT

2.7.1 Computation of Differences for Time, Azimuth, Elevation, Range, and Height Between Adjacent Levels

$$\Delta G = 60/(GA - GB)$$

$$\Delta Z = (ZA - ZB) \cdot \Delta G$$

$$\Delta\phi = (\phi A - \phi B) \cdot \Delta G$$

$$\Delta\theta = (\theta A - \theta B) \cdot \Delta G$$

$$\Delta R = (RA - RB) \cdot \Delta G$$

where ΔG = difference in time in fractional parts of minutes

ΔZ = difference in geometric altitudes

$\Delta\phi$ = difference in elevation angles

$\Delta\theta$ = difference in azimuth angles

ΔR = difference in range

GA = time of upper level (seconds)

GB = time of lower level (seconds)

ZA = altitude of upper level (meters)

ZB = altitude of lower level (meters)

ϕA = elevation angle of upper level (degrees)

ϕB = elevation angle of lower level (degrees)

θA = azimuth angle of upper level (degrees)

θB = azimuth angle of lower level (degrees)

RA = range of upper level (meters)

RB = range of lower level (meters)

2.7.2 Computation of Geometric Height

$$Z = [(RE + H_T)^2 + R^2 + 2 \cdot (RE + H_T) \cdot \sin\phi]^{1/2} - RE$$

where Z = geometric height (meters)

RE = radius of the Earth (meters)

H_T = station height (meters) (see paragraph 7.4)

ϕ = elevation angle of the target (degrees)

R = slant range to target (meters)

2.7.3 Correction of Elevation Angle for Curvature of the Earth

$$\phi_c = \phi + \{[Z \cdot \cos\phi / \sin\phi] / 2.2 \cdot RE\}$$

where ϕ_c = corrected elevation angle (radians)

ϕ = elevation angle (radians)

Z = geometric height (meters)

RE = radius of the Earth (meters)

2.7.4 Computation of the East-West and North-South Position Components for Each Data Point

$$X = R \cdot \cos \phi_c \cdot \sin \theta$$

$$Y = R \cdot \cos \phi_c \cdot \cos \theta$$

where X = east-west position component

Y = north-south position component

R = slant range to target (meters)

ϕ_c = corrected elevation angle (degrees)

θ = azimuth angle of the target (degrees)

2.8 Subroutine RD46CH

2.8.1 Computation of the Azimuth, Elevation, and Slant Range Factors

$$\theta_A = 0.125 \cdot \theta + IRZ$$

$$\phi_E = 0.125 \cdot \phi + IRZ$$

$$R^2 = 8.0 \cdot R + IRZ$$

where θ_A = azimuth factor

ϕ_E = elevation factor

R^2 = range factor

θ = azimuth angle (degrees)

ϕ = elevation angle (degrees)

R = range (meters)

IRZ = timing factor

2.8.2 Computation of Azimuth Angle, Elevation Angle, and Slant Range of the Data Point

$$\theta = 180 - \theta_A$$

$$\phi = 180 - \phi_E$$

$$R = 1.953125 \cdot R^2$$

where θ = azimuth angle (degrees)

ϕ = elevation angle (degrees)

R = slant range (meters)

ϕ_E = elevation factor

θ_A = azimuth factor

R^2 = range factor

2.9 Subroutine TMPMERG

2.9.1 Computation of Temperature (Steinhart Equation)

$$T = 1/[A + (B \cdot LR) + (C \cdot LR^3)]$$

where T = temperature in degrees Kelvin

LR = log of the thermister resistance value

A =
B =
C = } calibration constants supplied by the instrument manufacturer

2.9.2 Computation of Temperature (Layton–Clark Equation)

$$T = B/(LR - A) - C$$

where T = temperature in degrees Kelvin

LR = log of the thermister resistance value

A =
B =
C = } calibration constants supplied by the instrument manufacturer

2.10 Subroutine INTPTMP

2.10.1 Computation of Interpolation Ratio

$$K = (G_2 - G)/(G_2 - G_1)$$

where K = interpolation ratio

G_2 = time of upper bounding level

G_1 = time of lower bounding level

G = time of interpolated level

2.10.2 Interpolation for Missing Temperatures

$$T = T_2 - K \cdot (T_2 - T_1)$$

where T = interpolated temperature (degrees K)

T_2 = temperature, upper bounding level (degrees K)

T_1 = temperature, lower bounding level (degrees K)

K = interpolation ratio

2.11 Subroutine MIDINT

2.11.1 Computation of the Midinterval VX and VY

$$VX = (X - XA)/(GA - G)$$

$$VY = (Y - YA)/(GA - G)$$

where VX = midinterval east-west velocity component

VY = midinterval north-south velocity component

XA = upper bounding level east-west position component

X = lower bounding level east-west position component

YA = upper bounding level north-south position component

Y = lower bounding level north-south position component

GA = time after launch to upper bounding level (seconds)

G = time after launch to lower bounding level (seconds)

2.11.2 Computation of Fall Rate

$$VZ = (ZA - Z)/(GA - G)$$

where VZ = fall rate (km/seconds)

ZA = altitude, upper bounding level (km)

Z = altitude, lower bounding level (km)

GA = time after launch to upper bounding level (seconds)

G = time after launch to lower bounding level (seconds)

2.11.3 Computation of Mean Temperature, Mean Height, and Mean Time

$$TP = (T + TA)/2$$

$$H = (Z + ZA)/2$$

$$GG = (G + GA)/2$$

where TP = mean temperature

TA = temperature, upper bounding level (degrees K)

T = temperature, lower bounding level (degrees K)

H = mean height

ZA = height, upper bounding level (km)

Z = height, lower bounding level (km)

GG = mean time (seconds)

GA = time, upper bounding level (seconds)

G = time, lower bounding level (seconds)

2.12 Subroutine BANDTC

2.12.1 Computation of a Delta Time

$$\Delta G = G_3 - G_1$$

where ΔG = delta time

G_3 = time of upper bounding level

G_1 = time of lower bounding level

2.12.2 Computation of Local Acceleration of Gravity

$$GL = GRAT \cdot 9.80616$$

where GL = local acceleration of gravity

GRAT = ratio of local gravity to gravity at 45 degrees latitude

9.80616 = acceleration of gravity at 45 degrees latitude

2.12.3 Computation of Ballistic Motion Corrections (reference 2, Bibliography)

2.12.3.1 Correction of East-West and North-South Velocity Components

$$VX = VX_2 - \frac{VX_2 \cdot [(VX_3 - VX_1)/\Delta G]}{[(VZ_3 - VZ_1)/\Delta G] + GL}$$

$$VY = VY_2 - \frac{VY_2 \cdot [(VY_3 - VY_1)/\Delta G]}{[(VZ_3 - VZ_1)/\Delta G] + GL}$$

where VX = corrected east-west velocity component

VY = corrected north-south velocity component

VX_1 = lower level east-west velocity component

VX_2 = intermediate level east-west velocity component

VX_3 = upper level east-west velocity component

VY_1 = lower level north-south velocity component

VY_2 = intermediate level north-south velocity component

VY_3 = upper level north-south velocity component

VZ_1 = fall rate, lower level

VZ_3 = fall rate, upper level

ΔG = delta time

GL = local acceleration of gravity

2.12.3.2 Computation of Ventilation Velocity

$$V = [VZ_2^2 + (VX - VX_2)^2 + (VY - VY_2)^2]^{1/2}$$

where V = ventilation velocity

VZ_2 = intermediate level vertical velocity

VX = corrected east-west velocity component

VX_2 = intermediate level east-west velocity component

VY = corrected north-south velocity component

VY_2 = intermediate level north-south velocity component

2.12.3.3 Computation of Aerodynamic Heating Correction

$$AA = K1_Z \cdot V^2$$

where AA = aerodynamic heating correction

$K1_Z$ = aerodynamic heating term vs altitude (see attachment 8, table 1)

Z = index into K1 table (20—70 km)

V = ventilation velocity

2.12.3.4 Computation of Time Lag Correction

$$AB = K2_Z \cdot (T_3 - T_1)/\Delta G$$

where AB = time lag correction

$K2_Z$ = time lag term vs altitude (see attachment 8, table 1)

T_3 = temperature of upper level (degrees K)

T_1 = temperature of lower level (degrees K)

ΔG = delta time

Z = index into the K2 table

2.12.3.5 Computation of Radiation Heat Loss Correction

$$AD = K3_Z \cdot T^4$$

where AD = radiation heat loss correction

$K3_Z$ = radiation heat loss term vs altitude (see attachment 8, table 1)

Z = index into the K3 table

T = temperature of the thermistor (degrees K)

2.12.3.6 Computation of Radiation and Electrical Correction

$$AC = K4_Z$$

$AC = K5_Z$ if at night

where AC = radiation and electrical correction

$K4_Z$ = radiation and electrical loss term, day

$K5_Z$ = radiation and electrical loss term, night

Z = index into the K4 and K5 tables

2.12.3.7 Computation of Corrected Temperature

$$TC = T - AA + AB - AC + AD$$

where TC = corrected temperature

T = temperature of the thermistor

AA = aerodynamic heating correction

AB = time lag correction

AC = radiation and electrical correction

AD = radiation heat loss correction

2.13 Subroutine COMPRSR

2.13.1 Computation of Interpolating Ratio

$$K = (ZA - Zb)/(ZA - ZB)$$

where K = interpolating ratio

ZA = upper level height

ZB = lower level height

Zb = baseline height

2.13.2 Computation of Baseline Temperature

$$Tb = TA - [K \cdot (TA - TB)] - 273.15$$

where Tb = baseline temperature (degrees C)

TA = upper level temperature (degrees K)

TB = lower level temperature (degrees K)

K = interpolation ratio

2.13.3 Computation of Temperature Difference

$$DIFF = Tb - TMP$$

where DIFF = temperature difference (degrees C)

Tb = baseline temperature (degrees C)

TMP = co-rawinsonde temperature for the level (degrees C)

2.14 Subroutine TWOKM

None

2.15 Subroutine PRESCOM

2.15.1 Computation of Geopotential Height

$$H = GRAT \cdot [(RE \cdot Z)/(RE + Z)]$$

where H = geopotential height

GRAT = gravitational ratio, local gravity to gravity at 45 degrees latitude

RE = radius of the Earth

Z = geometric height

2.15.2 Computation of Mean Virtual Temperature

$$\overline{TV} = (TV + TVP)/2$$

where $\overline{TV}$ = mean virtual temperature

TV = virtual temperature of the level

TVP = virtual temperature of the previous level

2.15.3 Computation of Log of Pressure

$$PL = PPL - (H - HP)/(PC \cdot \overline{TV})$$

where PL = log of pressure of the level

PPL = log of the baseline pressure

PC = 67.442 = metric constant

$\overline{TV}$ = mean virtual temperature of the layer

H = geopotential height of the level

HP = geopotential height of the previous level

2.16 Subroutine ONEKILO

2.16.1 Computation of Next Output Level

$$Hs = [(IH/1000) \cdot 1000] + HINT$$

where Hs = desired output level

IH = height converted to integer

HINT = output interval requested

2.16.2 Computation of Interpolation Ratio

$$K = (Hs - HB)/(HA - HB)$$

where K = interpolation ratio

Hs = output level

HA = height of upper bounding level

HB = height of lower bounding level

2.16.3 Interpolation of Position Components, Temperature, Uncorrected Temperature, Fall Rate, and Log of Pressure

$$Xs = K \cdot (XA - XB) + XB$$

where Xs = interpolated value

K = interpolation ratio

XA = upper level value

XB = lower level value

2.17 Subroutine PLOTCH

None

2.18 Subroutine PUTOUT

None

2.19 Subroutine ETFORM

2.19.1 Computation of Interpolation Ratio for Significant Data

$$K = (Hs - HB)/(HA - HB)$$

where K = interpolation ratio

Hs = output level

HA = height of upper bounding level

HB = height of lower bounding level

2.19.2 Computation of Interpolation Ratio for Mandatory Data

$$K = (PL - PB)/(PA - PB)$$

where K = interpolation ratio

PL = log of pressure at output level

PA = log of pressure, upper bounding level

PB = log of pressure, lower bounding level

2.19.3 Interpolation for Output Data

$$Xs = K \cdot (XA - XB) + XB$$

where Xs = interpolated value

K = interpolation ratio

XA = upper level value

XB = lower level value

2.20 Subroutine CODIT

2.20.1 Computation of Velocity of Sound

$$Vs = 331.45 \cdot (T/273.15)^{1/2}$$

where Vs = velocity of sound (meters/second)

T = temperature (degrees K)

2.20.2 Computation of Pressure

$$P = 10^{PL}$$

where P = barometric pressure (millibars)

PL = log of pressure

2.20.3 Computation of Density

$$\varrho = (P/T) \cdot 348.38$$

where ϱ = density (grams/cubic meter)

P = pressure (millibars)

T = temperature (degrees K)

2.21 Subroutine RDRAWIN

None

2.22 Subroutine INT

2.22.1 Interpolation for Output Data

$$K = (Hs - HB)/(HA - HB)$$

where K = interpolation ratio

Hs = output level

HA = height of upper bounding level

HB = height of lower bounding level

$$Xs = K \cdot (XA - XB) + XB$$

where Xs = interpolated value

K = interpolation ratio

XA = upper level value

XB = lower level value

2.23 Subroutine ROCOB

None

2.24 Subroutine MANDL

None

3.0 INPUT

Input to the rocket program is divided into four groups: temperature data, tracking data, co-rawinsonde data, and control data from the terminal.

3.1 Tracking Data

The program reads two basic formats of input data: the 46-character radar data and the TAER format. The other input formats are converted by editor programs to the TAER format.

3.1.1 Radar Tracking Data, 46-character

The 46-character data is from the tracking radar and is put into a file in the following format (see attachment 6):

7911214124802014250255460000136344346224 62

See attachment 8 for a breakdown of this data.

3.1.2 TAER Format and MATTY File

The TAER format and MATTY file are identical except for the first line of the MATTY file (see attachment 5).

GGGGG.G AAA.AAA EE.EEE RRRRR.R

GGGGG.G = time of data (seconds after midnight)

AAA.AAA = azimuth angle (degrees from true north)

EE.EEE = elevation angle (degrees from horizontal)

RRRRR.R slant range (yards)

3.2 Temperature Data

Temperature data is in three types of record groups collected by one of two types of tracking systems. The tracking systems are the AN/GMD-4 and the MSS system. The three types of records follow.

3.2.1 Ordinate Ratios (Attachment 2)

Record	Contents
1	Test number (5 digits)
2	Station number (2 digits) Month (2 digits) Day (2 digits) Year (2 digits) Time of launch, GMT (4 digits) Type of instrument (3 digits) Plain language name of motor Type RAEMG group (see attachment 1, tables 1 through 5) (6 digits)
3	Temperature equation constants Three 8-character numbers
4—24	Temperature sensor calibration data Two 8-character numbers each
25	Separator flag
26—end	Ordinate ratio (3 digits) referenced to 95 followed by time in seconds after launch (4 digits)

3.2.2 Coded Temperatures (Attachment 3)

Record	Contents
1	Test number (5 digits)
2	Station number (2 digits) Month (2 digits) Day (2 digits) Year (2 digits) Time of launch, GMT (4 digits) Type of instrument (3 digits) Plain language name of motor Type RAEMG group (see attachment 1, tables 1 through 5) (6 digits)
3—end	Coded temperatures (4 digits) followed by time in seconds after launch (4 digits). Temperature is coded by adding 50 to all negative temperatures and omitting the minus sign.

3.2.3 Missing Temperatures

Records 1 and 2 are the same as in the preceding paragraphs; in this case, they constitute the entire file.

3.3 Co-Rawinsonde Data

The co-rawinsonde input data is the 250-meter output data from the rawinsonde program. Attachment 15 illustrates the format of this file. Its contents are as follows:

Altitude	Meters
Wind direction	Degrees
Windspeed	Meters/second
Temperature	Degrees Celsius
Dewpoint	Degrees Celsius
Pressure	Millibars
Relative humidity	Percent
Absolute humidity	Grams/cubic meter
Density	Grams/cubic meter
Refractive index	Microwave in N units, optical
Velocity of sound	Knots
Shear	Seconds^{-1}
Vapor pressure	Millibars
Precipitable water	Millimeters

3.4 Control Data (Operator Dialogue)

A sample of the operator dialogue follows:

```
IS THIS A NIGHT RUN ? YES/NO
? NO
IS THIS A MATTY RUN ? YES/NO
? YES
```

4.0 OUTPUT

The primary output of the program is constant altitude data in kilometer intervals, 250-meter intervals, and 1,000-ft intervals. This information is output to the printer, disc file (or magnetic tape), and punch card file. The format for this data is the same to all three files as follows:

Height	Geometric feet or meters at standard intervals of 1 kilometer, 250 meters, and 1,000 ft
Wind direction	Degrees from true north. Missing data is shown as 999
Windspeed	Knots or meters/second. Calm is 000 and missing is 999
Temperature	Degrees Kelvin
Temperature correction	Degrees Kelvin
Atmospheric pressure	Millibars
Atmospheric density	Grams/cubic meter

Fall Rate	Feet/second or meters/second (determined by height units)
Speed of Sound	Knots or meters/second (determined by height units)
Wind Shear	Seconds^{-1}

Additionally, in the printer output, there are three quality control sets of data and a rocketsonde message code. The first quality control data set contains tracking information as follows:

Data point time	Seconds after midnight
Azimuth angle	Degrees from true north
Elevation angle	Degrees from horizontal
Range	Meters
Height	Meters
Data point time	Time of day — hours, minutes, and seconds
Time difference	Time difference between adjacent data points, seconds
Azimuth difference	Change in azimuth angle/minute, degrees
Elevation difference	Change in elevation angle/minute, degrees
Range difference	Change in range/minute, meters
Height difference	Change in height/minute, meters

The second quality control data set contains temperature information as follows:

Height	Meters
Temperature	Temperature of the rocketsonde instrument, degrees Celsius
Temperature	Temperature of the rawinsonde instrument, degrees Celsius
Temperature difference	Difference between above two temperatures at the height indicated

The third quality control data set is a graph of temperature in degrees Kelvin versus height in meters. The graph covers a range of 20,000 to 70,000 meters in height.

The teletype output is the rocketsonde coded message. Attachment 10 shows a sample copy of this output and attachment 11 gives a breakdown of the code.

The High Altitude Meteorological Data (HAMDATA) output is saved on disk for use as input to the HAMD program. A sample copy of this data is shown in attachment 14. The first section of this file consists of:

Column	
1—5	Altitude in geometric decameters
6—8	Wind direction with respect to true north, degrees
9—11	Windspeed in whole meters/second
12—15	Uncorrected y component, with a minus sign indicates northerly component, blank for southerly component
16—19	Uncorrected x component, with a minus sign indicates easterly component, blank for westerly component
20—23	Corrected y component, with a minus sign indicates a northerly component, blank for southerly component
24—27	Corrected x component, with a minus sign indicates an easterly component, blank for westerly component
28—30	Fall rate in whole meters/second
31—34	Temperature in whole degrees Celsius
35—37	Temperature correction, with a minus sign indicates negative temperature correction, blank indicates positive correction, whole degrees
38—44	Pressure in millibars to four significant digits with one digit to the left of the decimal point, three digits to the right of the decimal point, and a signed "exponent" to indicate the power of 10 by which the number is to be multiplied. Col. 38: first significant digit (never zero) Col. 39: decimal point Col. 40—42: three additional significant digits Col. 43: sign of exponent (never blank) Col. 44: power of 10 by which number is to be multiplied
45—51	Density in grams/cubic meter, same format as pressure
52—54	Speed of sound in whole meters/second

The second section of this file contains data as follows:

Height	Meters
Wind direction	Degrees from true north
Windspeed	Meters/second
Temperature	Degrees Celsius
Dewpoint	Degrees Celsius
Barometric pressure	Millibars
Refractive index	N units

5.0 ALGORITHMS

5.1 Subroutine MANDL

Convert mandatory level pressure to whole number for output in rocketsonde code using

$$IPS = (10^{PL(J)} + F1)\ (10^{JS}/10)$$

where IPS = pressure at mandatory level encoded as a whole number

PL(J) = log of the pressure at the mandatory level being converted to a whole number

F1 = round off factor used to move decimal point, this factor is based on PL(J)

If PL(J) < 0, F1 = 0.05
< −1, F1 = 0.005
< −2, F1 = 0.0005
< −3, F1 = 0.00005
< −4, F1 = 0.000005

JS = intermediate factor based on the pressure level indicator J which is set by the number of levels processed

If J ⩾ 31, JS = 6
< 31, JS = 5
< 26, JS = 4
< 21, JS = 3
< 16, JS = 2
< 10, JS = 1

5.2 Subroutine TWOKM

Set up values that are to be used when calling SIMQ by multiplying elements of the matrix and assigning to proper place in symmetric coefficient matrix (A).

$$AX_{(I,\ J)} = XA_{(I,\ J)} + XC_{(K,\ I)} \cdot SC_{(K,\ J)}$$

$$AY_{(I,\ J)} = YA_{(I,\ J)} + YC_{(K,\ I)} \cdot YC_{(K,\ J)}$$

Set up values that are to be used when calling SIMQ by multiplying elements of the matrix and assigning to proper place in constant vector matrix (B) using

$$BX_{(I)} = XB_I + XC_{(K,\ I)} \cdot X_K$$

$$BY_{(I)} = YB_I + YC_{(K,\ I)} \cdot Y_K$$

Using the coefficients returned from SIMQ, calculate a smoothed x and y from

$$SX = a^2XB_3 + aXB_2 + XB_1$$

$$SY = a^2XB_3 + aYB_2 + YB_1$$

where $a = 5$

XB = coefficients returned from SIMQ

SX = smoothed east-west component

SY = smoothed north-south component

5.4 Subroutine SIMQ

The least squares method provides a best fit of the components by generating a second degree polynomial equation, of general form:

$$y = k_2x^2 + k_1x + k_o$$

and computing an offset from the center of the 9-point range. Two matrices are created designated [A] and [B]. Symmetric coefficient matrix (SCM) [A] is in the form:

$$[A] = \begin{matrix} N & \Sigma X_i & \Sigma X_i^2 \\ \Sigma X_i & \Sigma X_i^2 & \Sigma X_i^3 \\ \Sigma X_i^2 & \Sigma X_i^3 & \Sigma X_i^4 \end{matrix}$$

and constant vector matrix (CVM) [B] is in the form of:

$$[B] = \begin{matrix} = \Sigma Y_i \\ = \Sigma X_i\ Y_i \\ = \Sigma X_i^2\ Y_i \end{matrix}$$

Note: Σ indicates summation from 1 to N. N=9

Basic matric equation [A] [K] = [B] is solved by finding the inverse of [A], $[A]^{-1}$ and performing multiplications:

$$[A]^{-1}\ [A]\ [K] = [A]^{-1}\ [B]$$

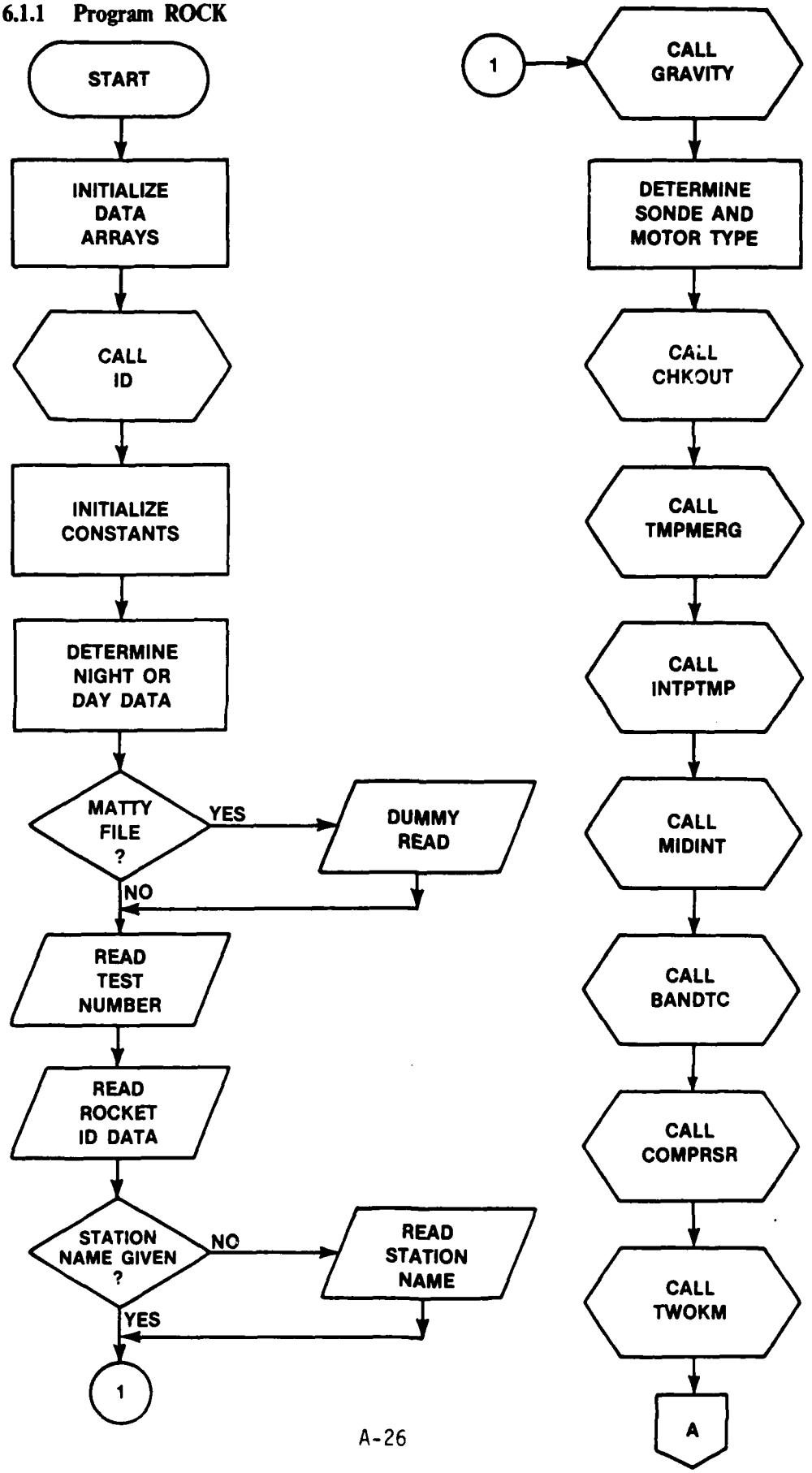
$$[I]\ [K] = [A]^{-1}\ [B]$$

$[A]^{-1}$ is calculated by SIMQ using the GAUSS-JORDAN inplace matrix inversion method. SIMQ returns the appropriate coefficients k_2, k_1, and k_o, which the calling routine incorporates in calculating the appropriate values.

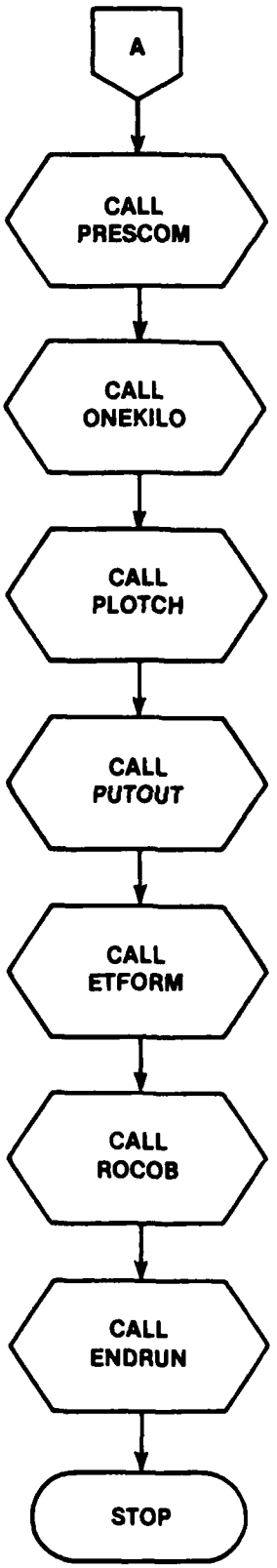
6.0 FLOWCHARTS

See the following pages.

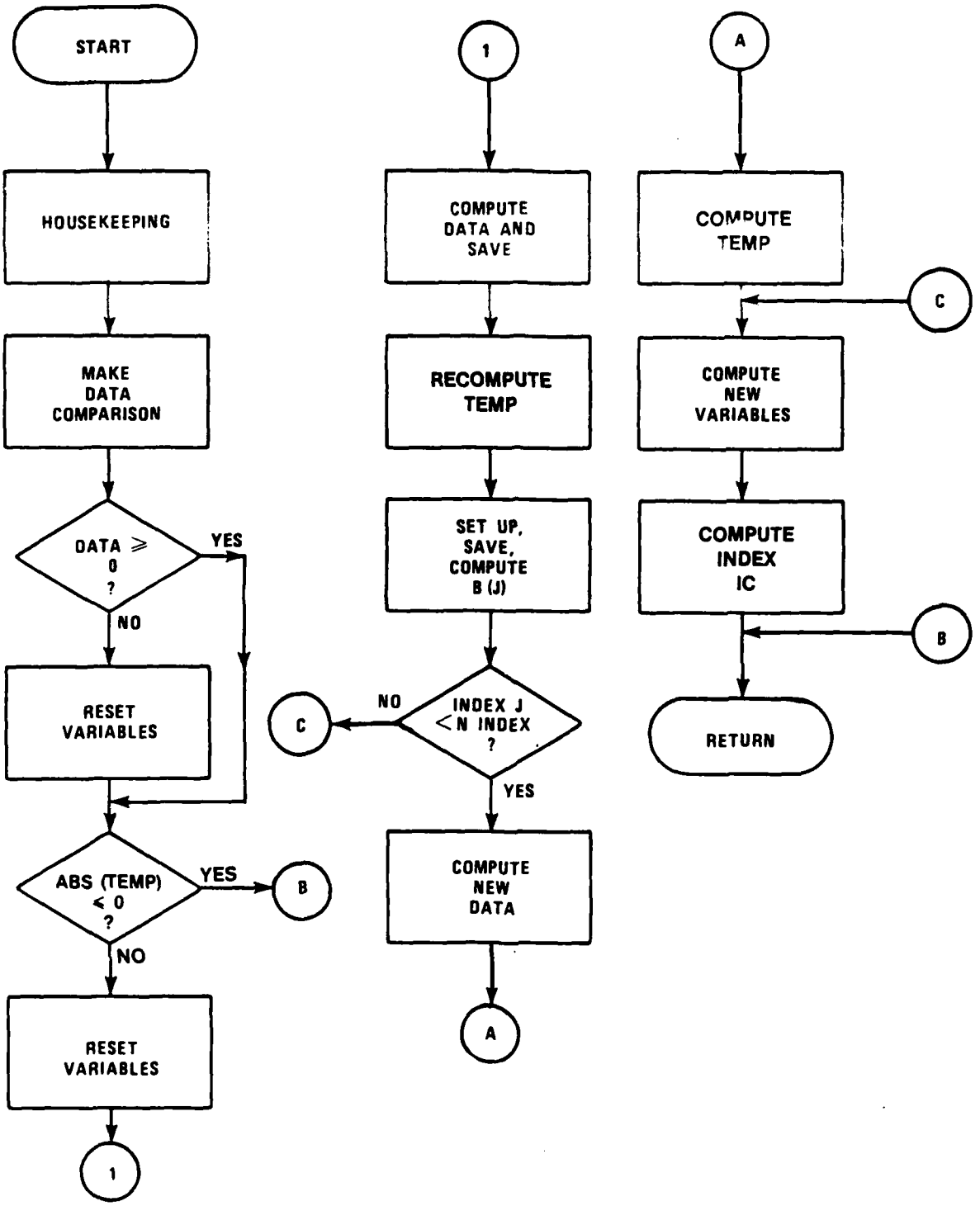
6.1.1 Program ROCK



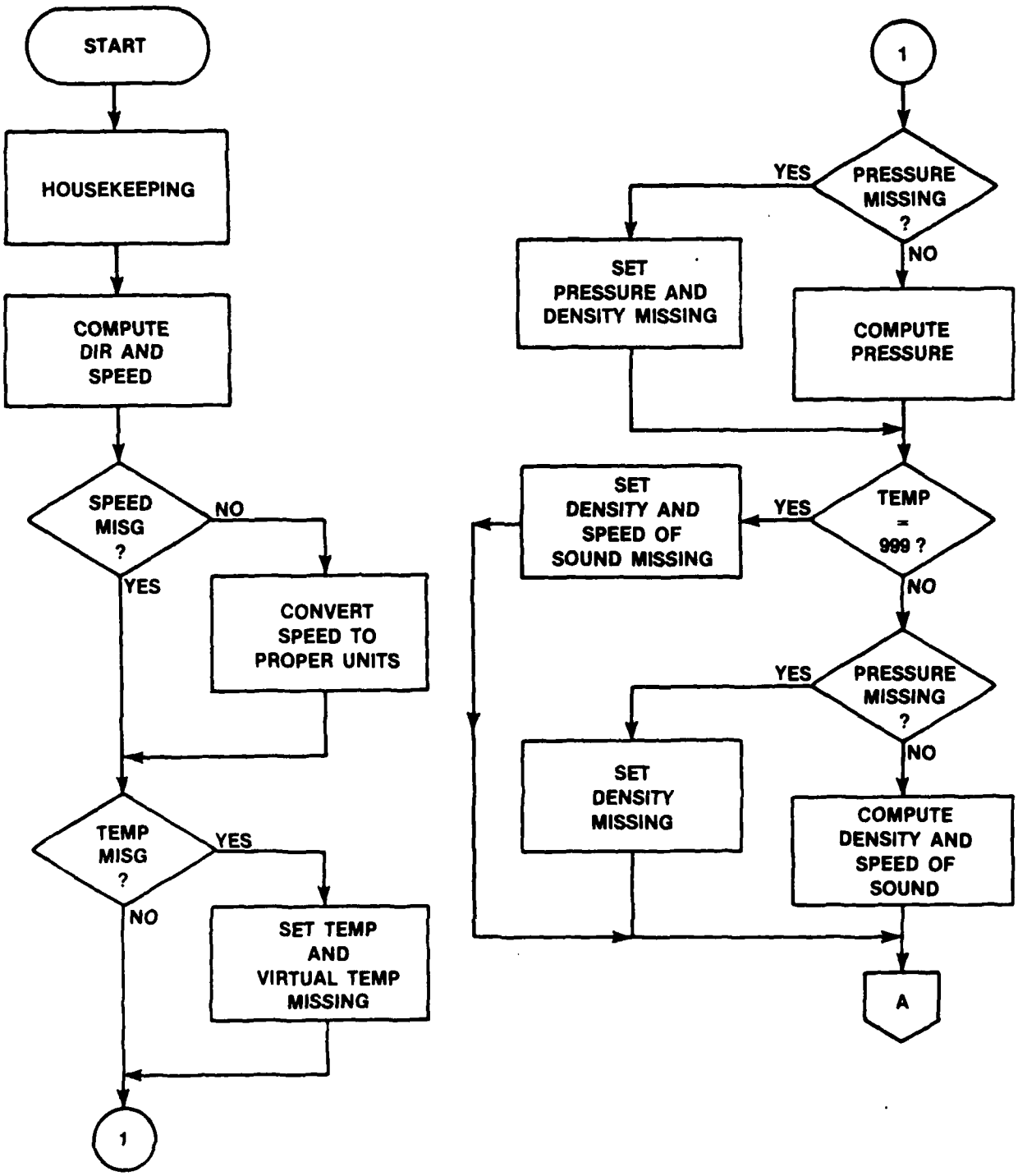
6.1.2 Program ROCK



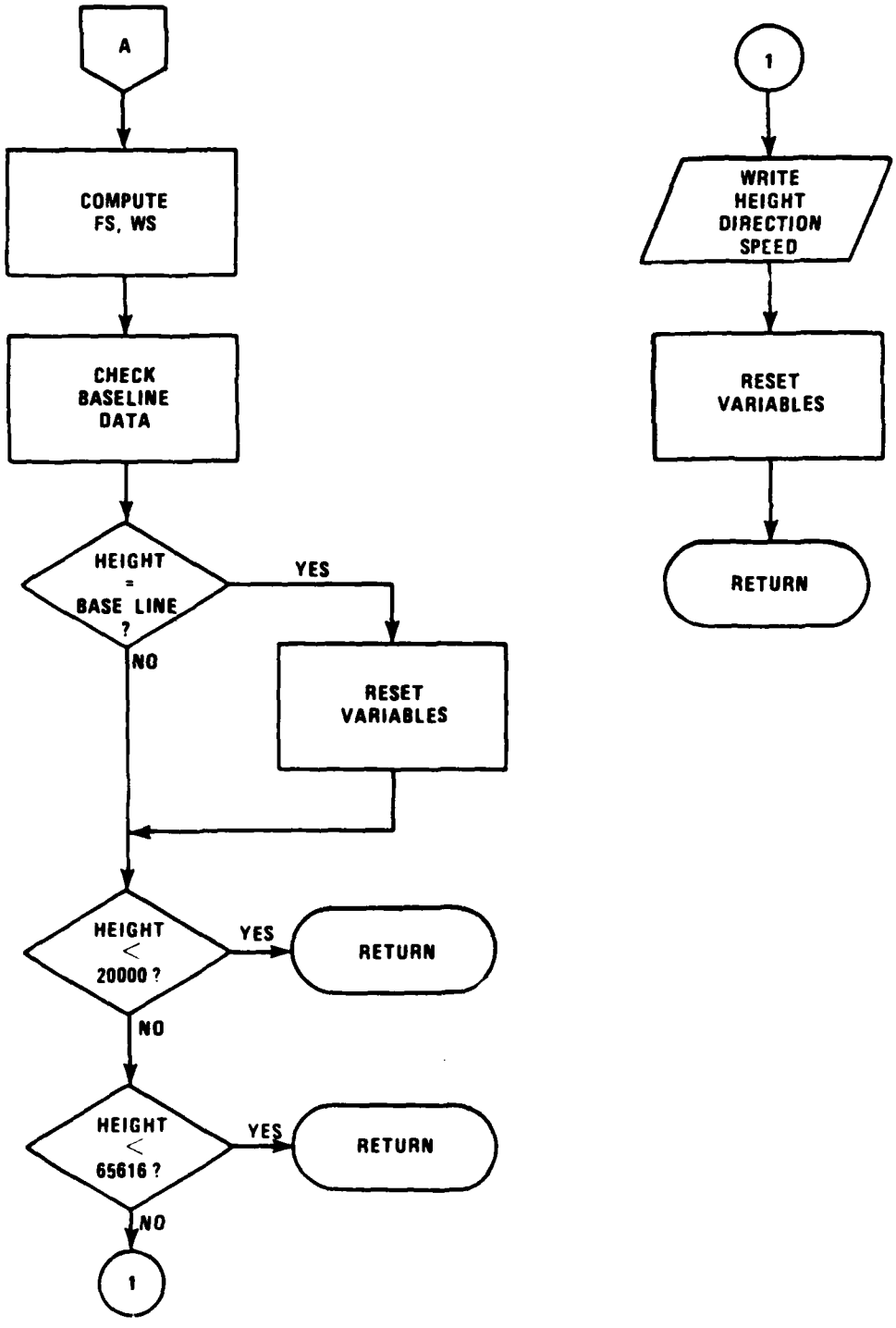
6.2 Subroutine SIMQ



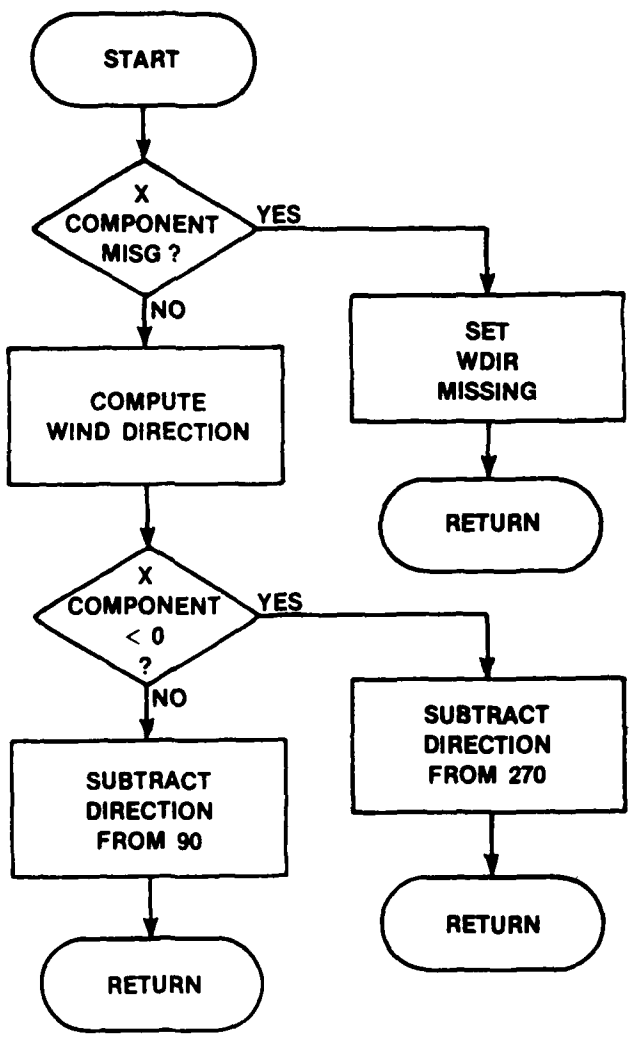
6.3.1 Subroutine OUTPUT

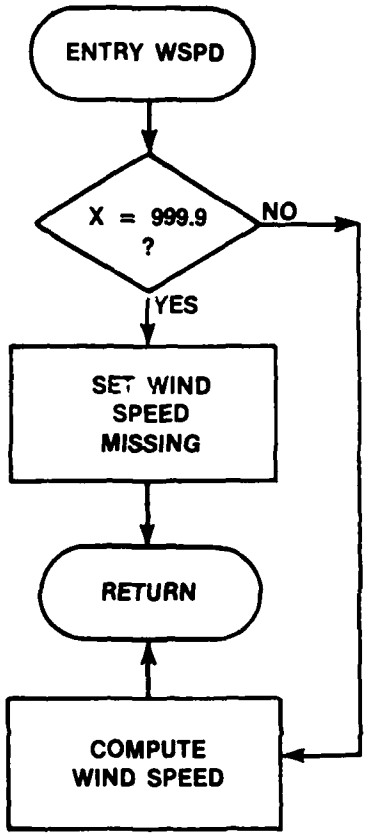


6.3.2 Subroutine OUTPUT

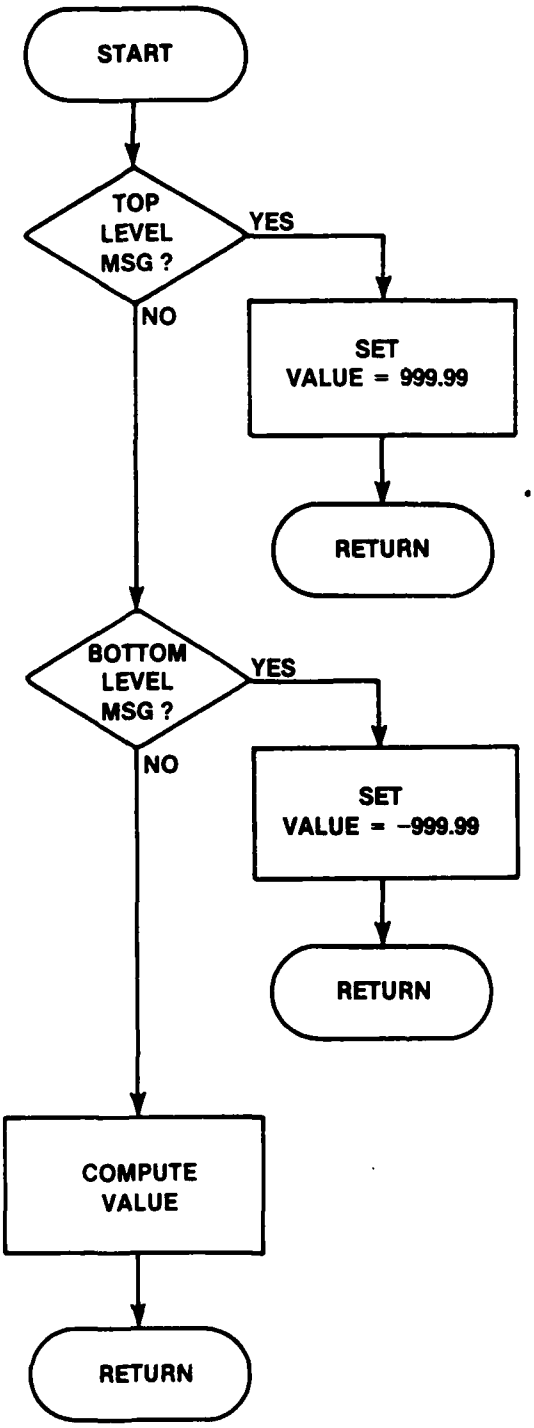


6.4 Function WDIR

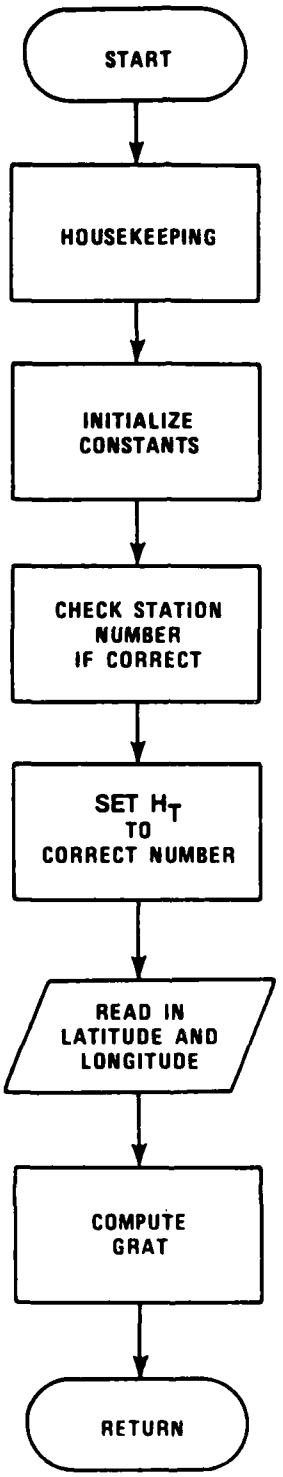




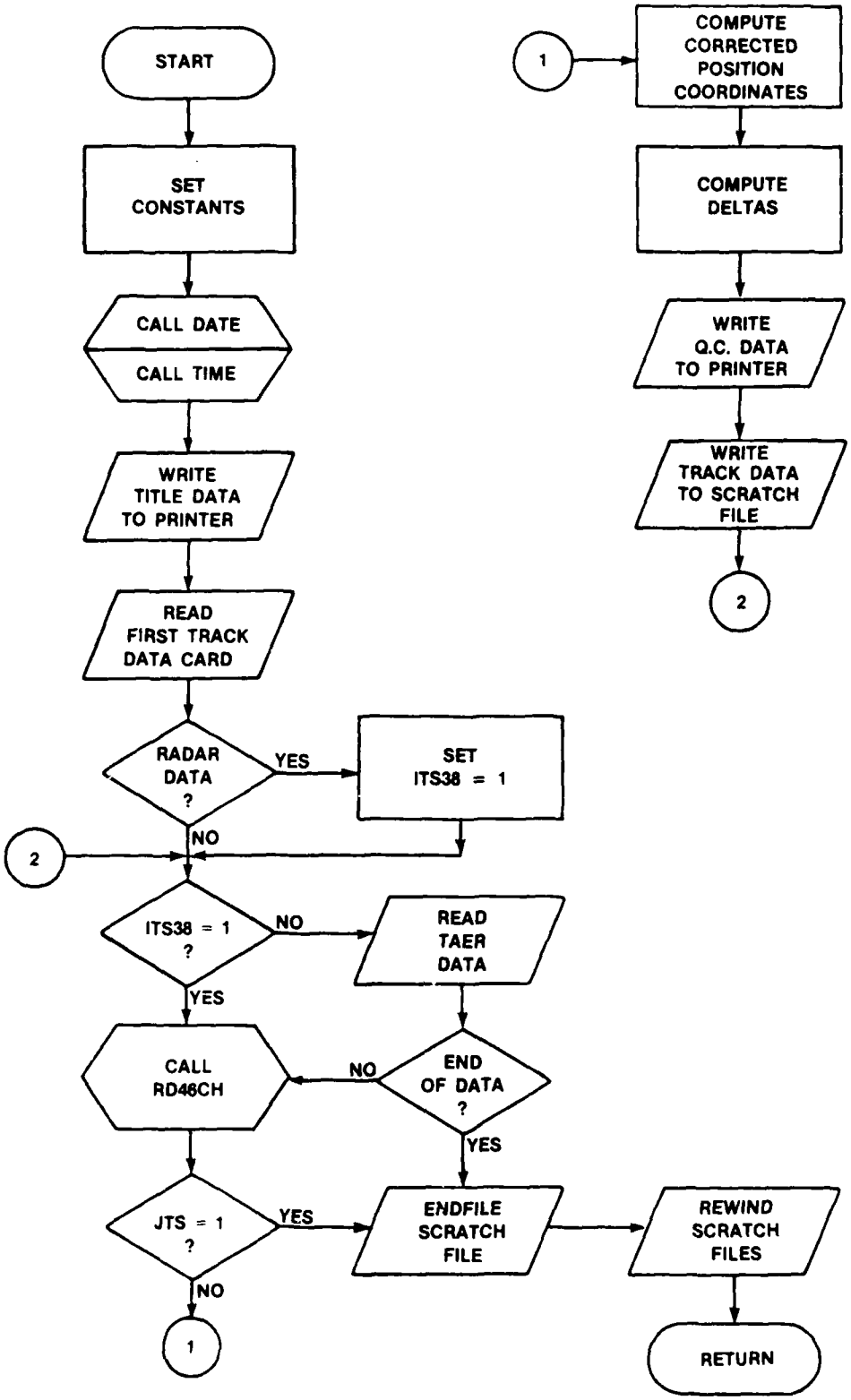
6.5 Function VALUE



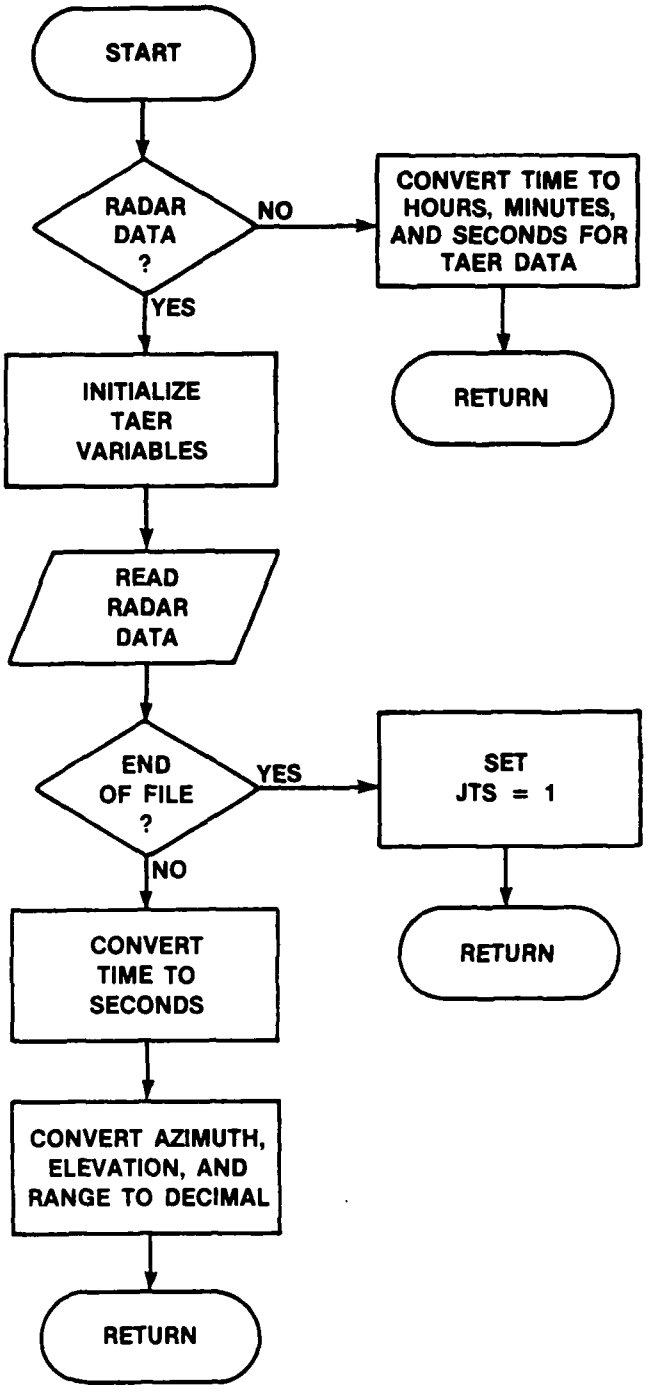
6.6 Subroutine GRAVITY



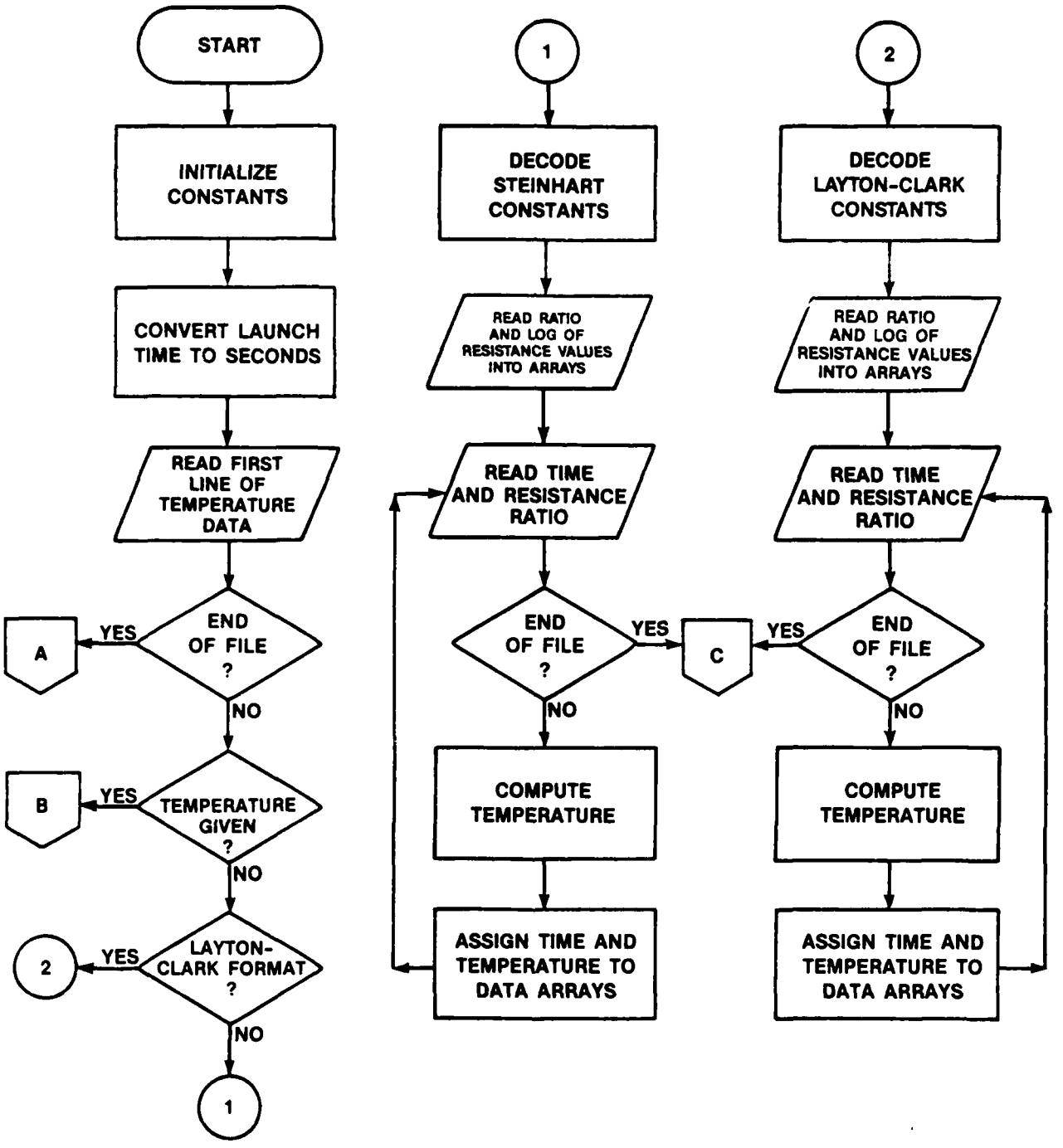
6.7 Subroutine CHKOUT



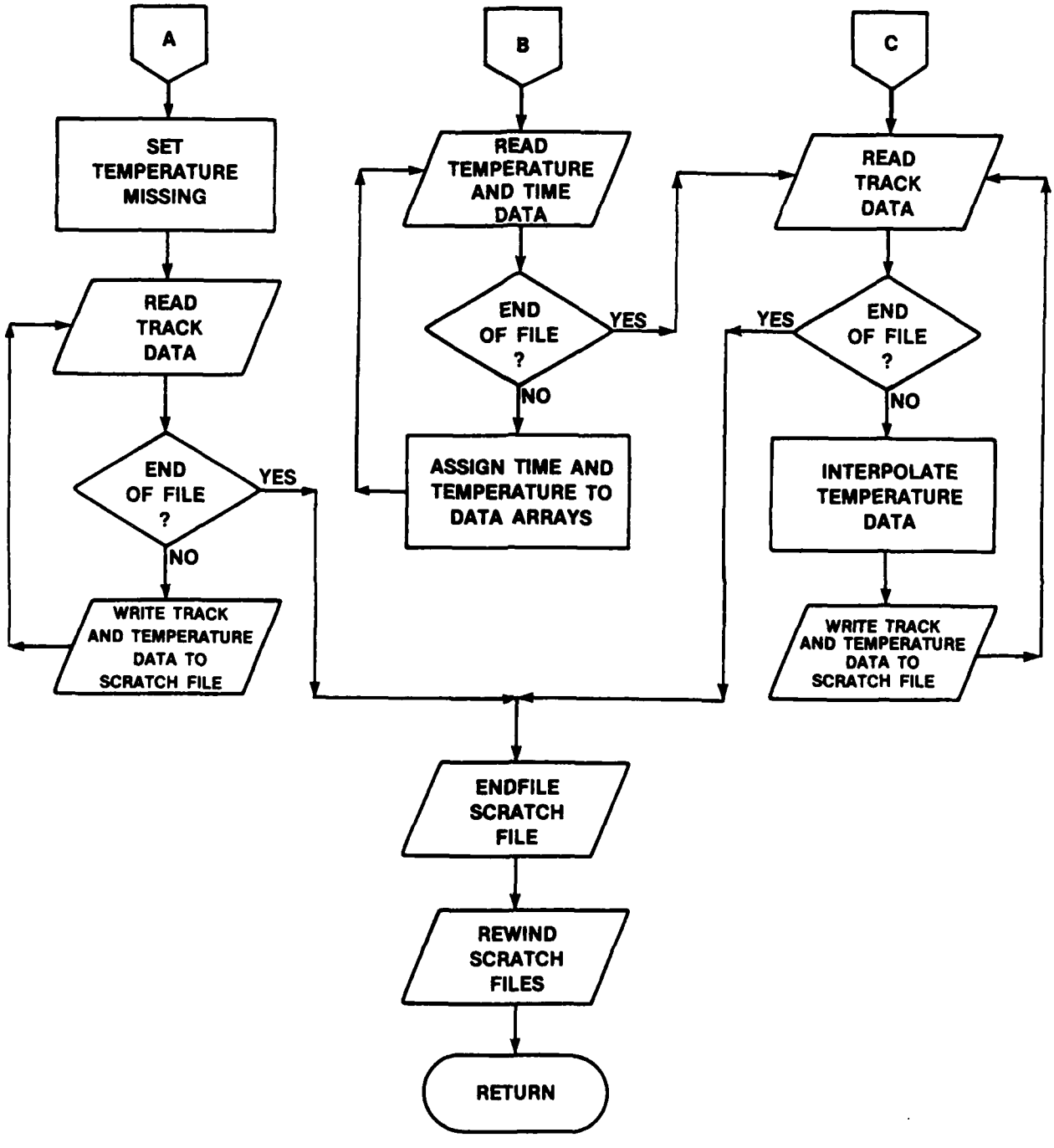
6.8 Subroutine RD46CH



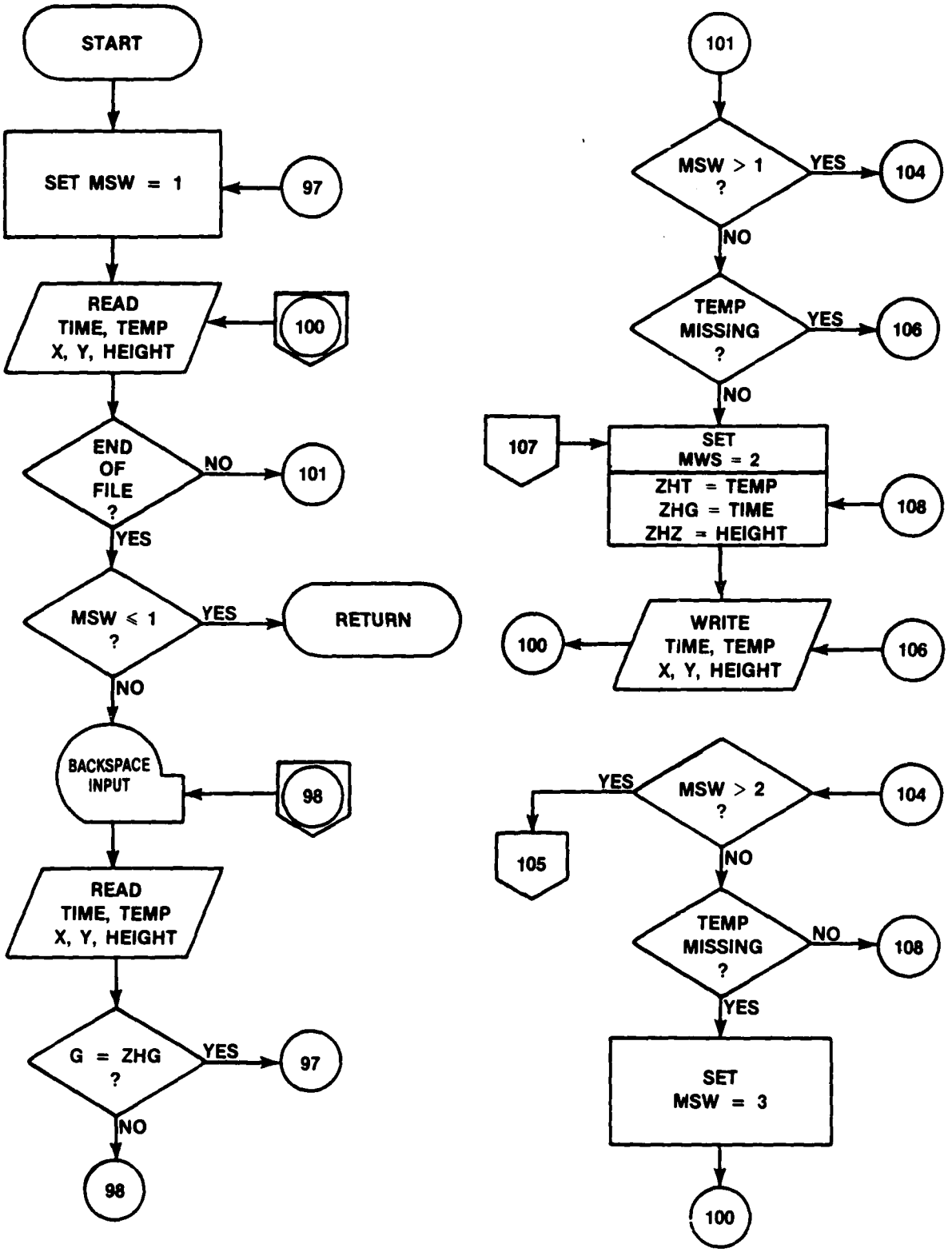
6.9.1 Subroutine TMPMERG



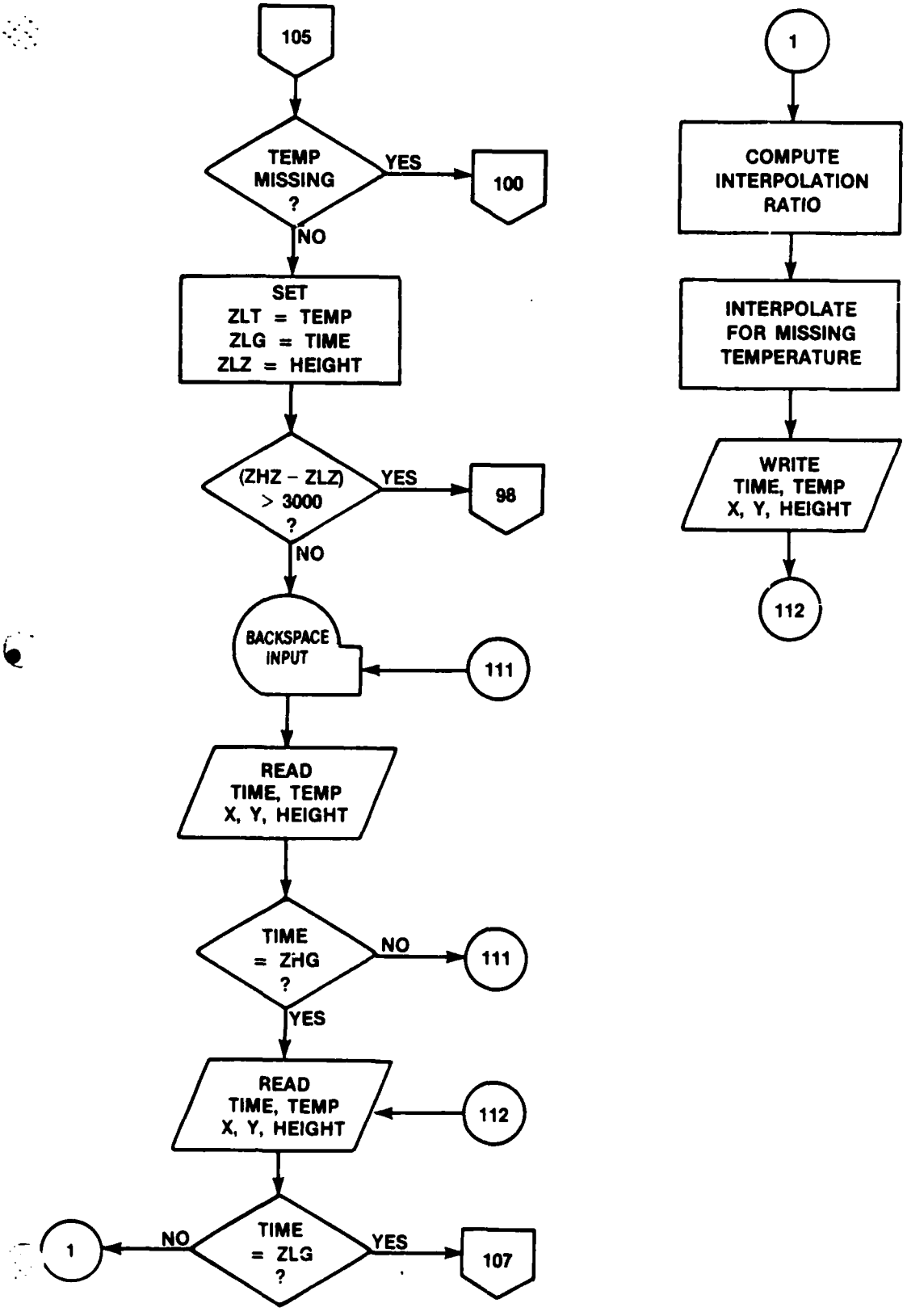
6.9.2 Subroutine TMPMERG



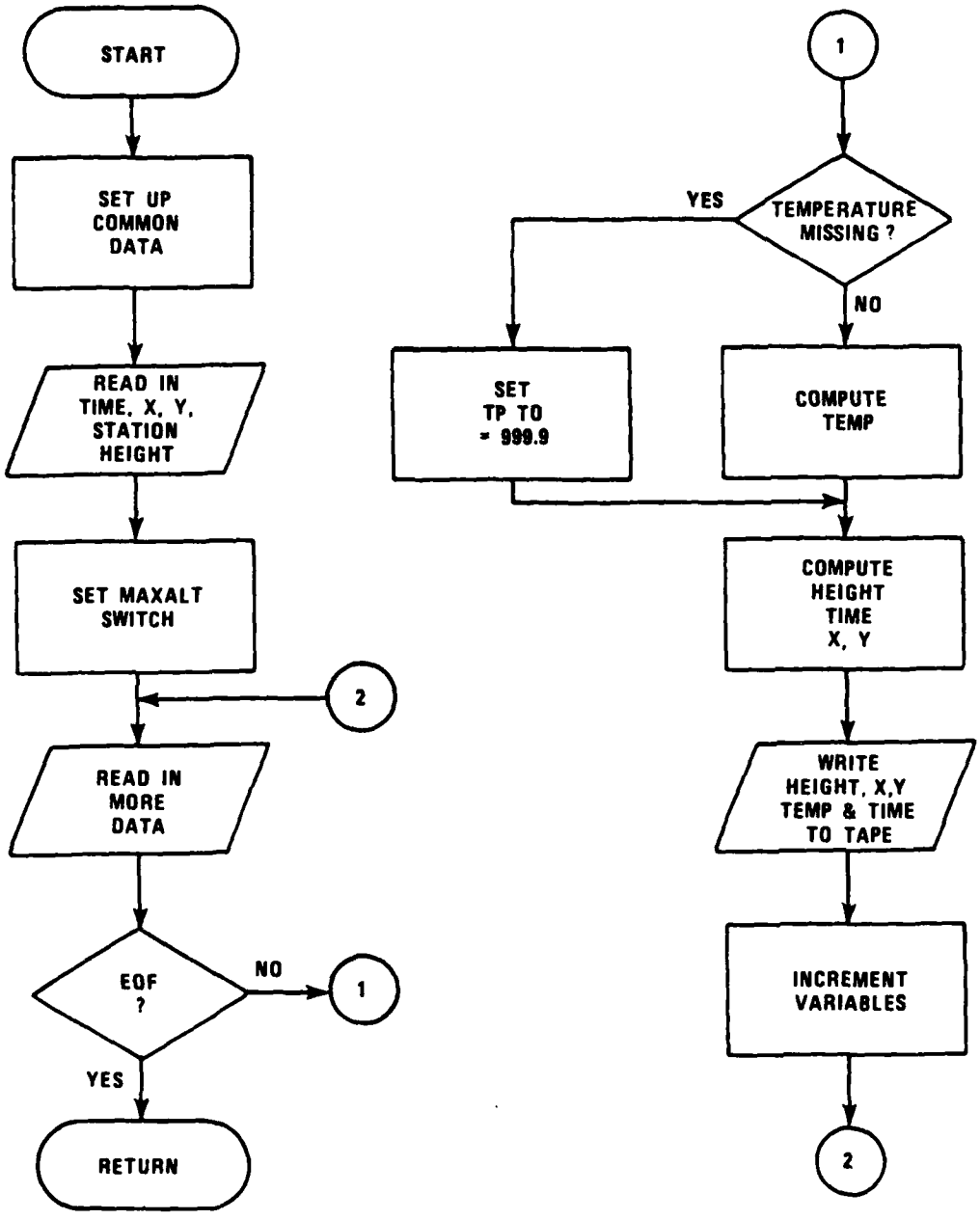
6.10.1 Subroutine INTPTMP



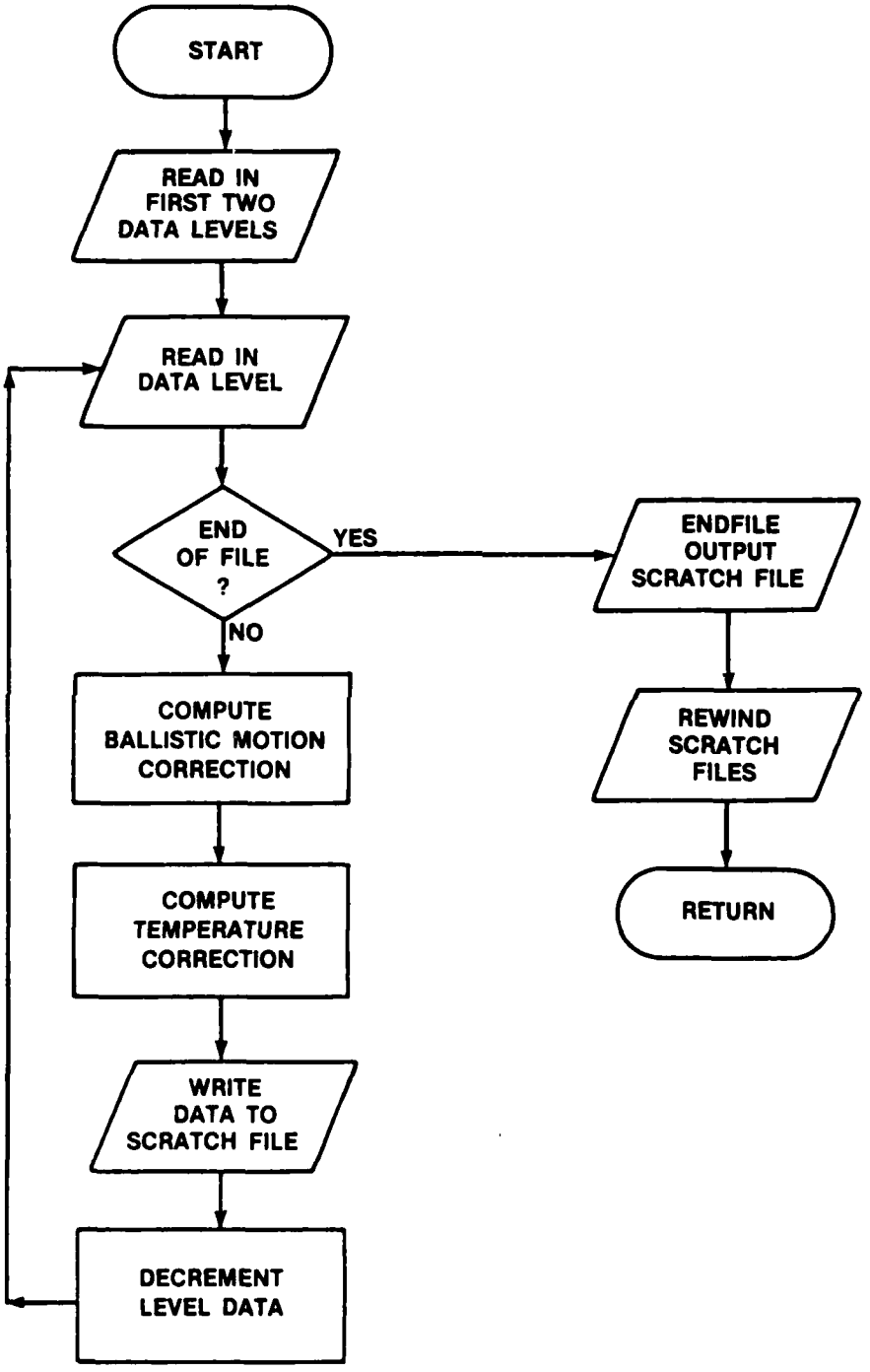
6.10.2 Subroutine INTPTMP



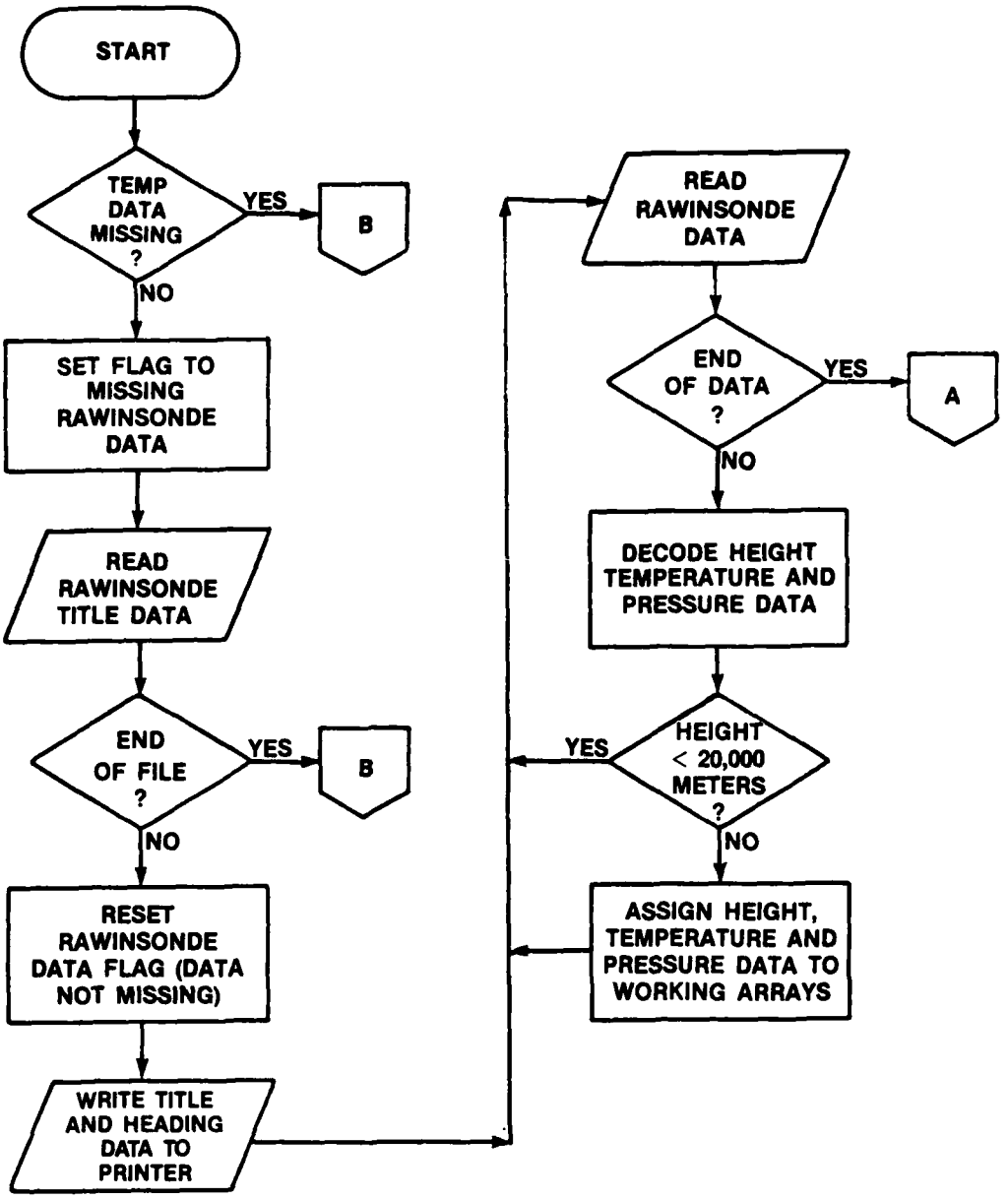
6.11 Subroutine MIDINT



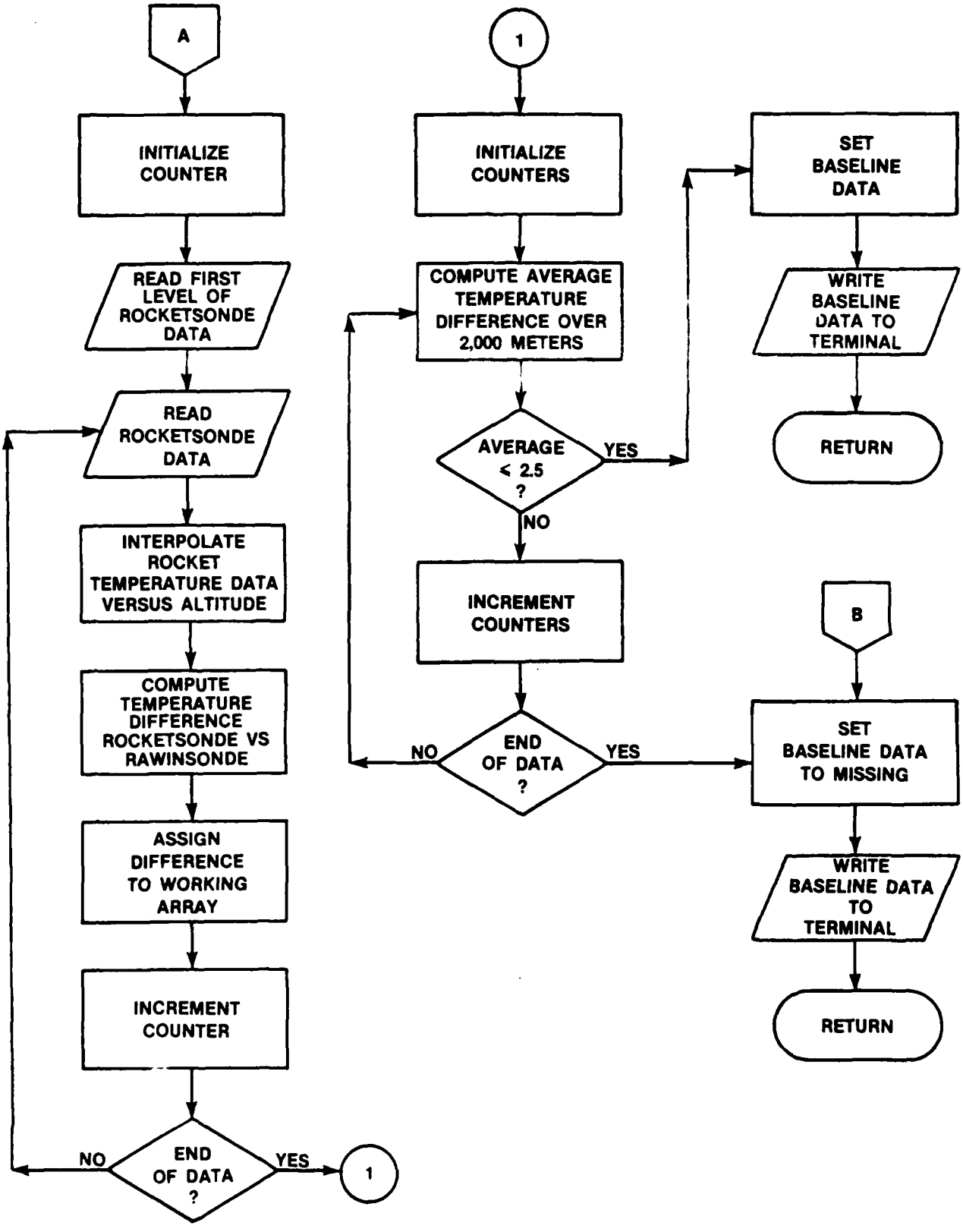
6.12 Subroutine BANDTC



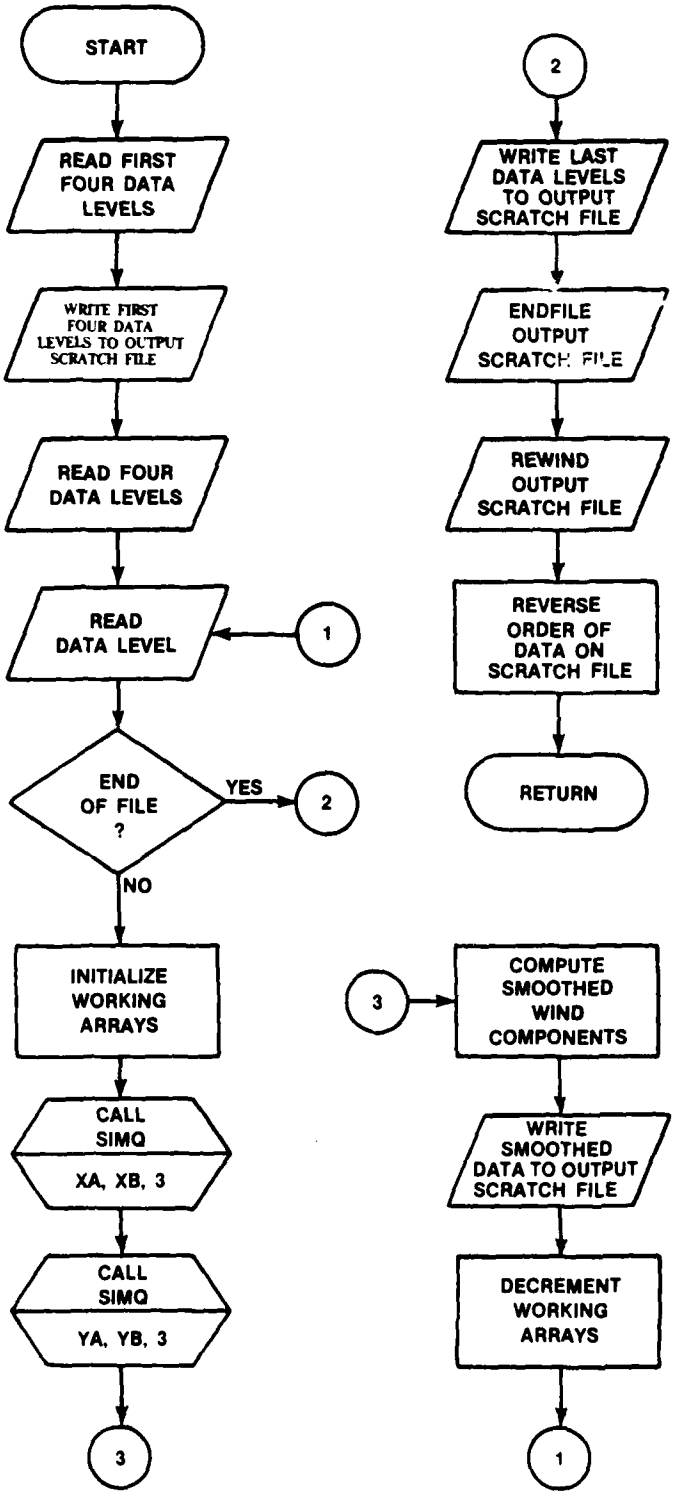
6.13.1 Subroutine COMPRSR



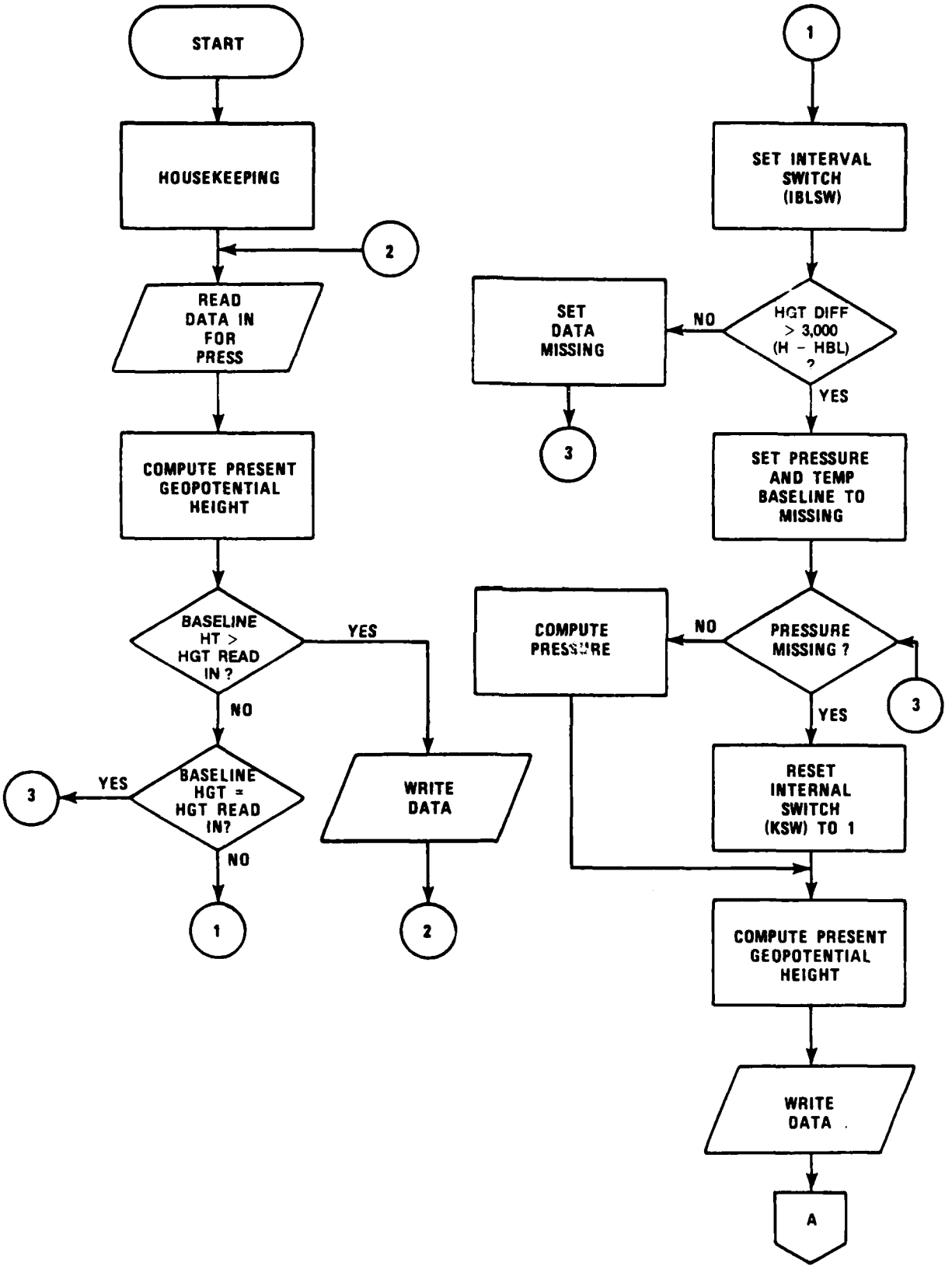
6.13.2 Subroutine COMPRSR



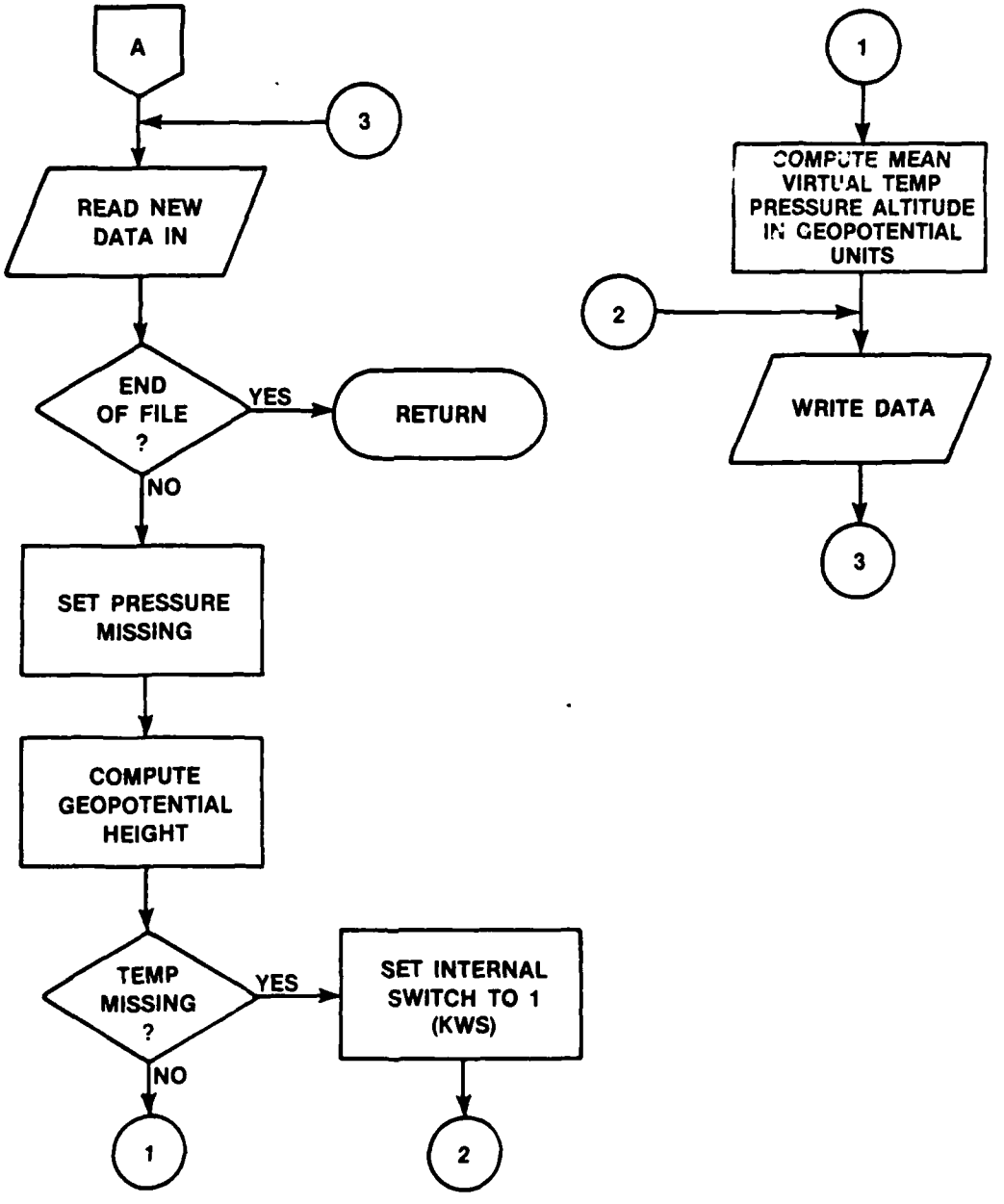
6.14 Subroutine TWOKM



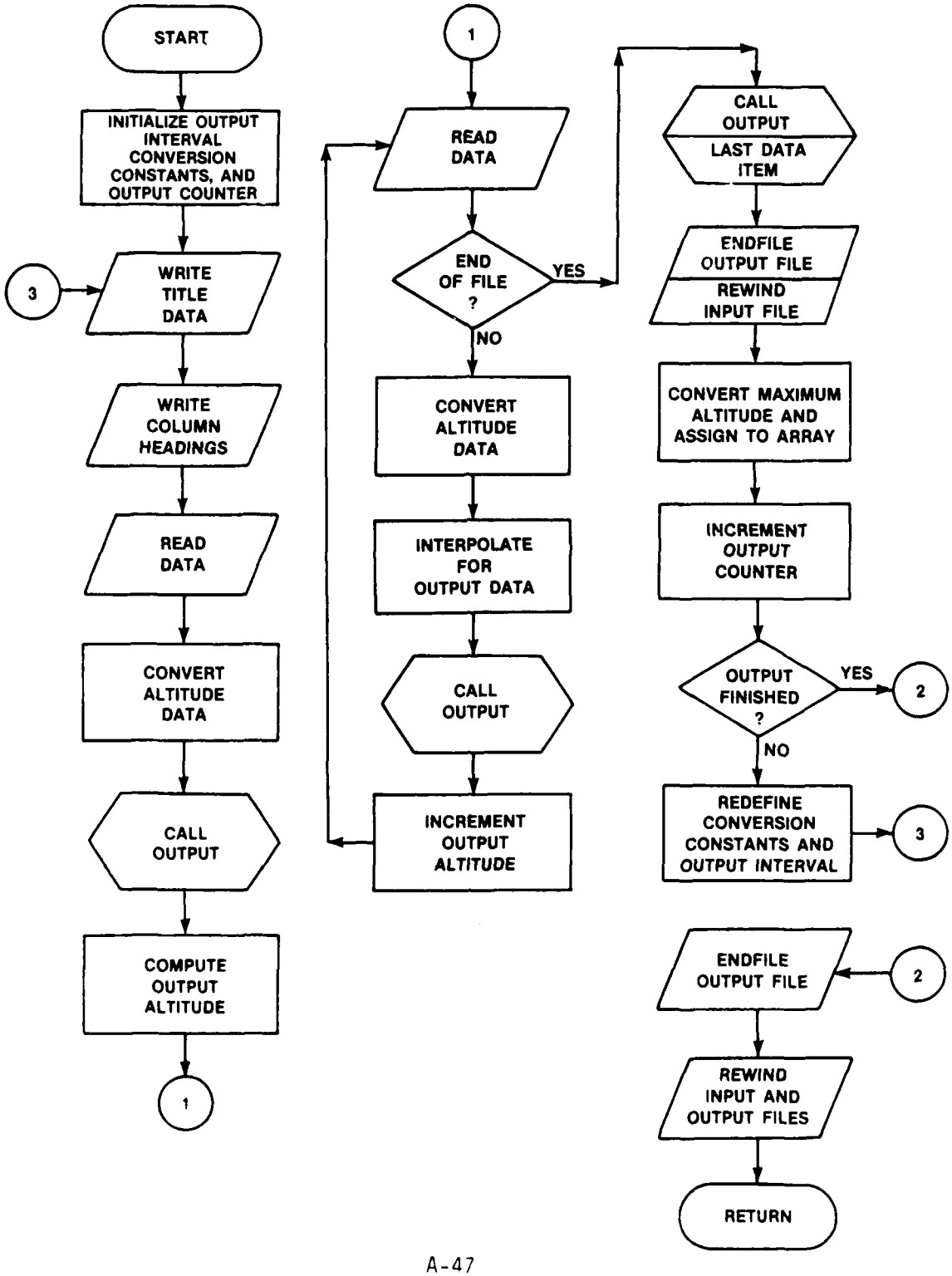
6.15.1 Subroutine PRESCOM



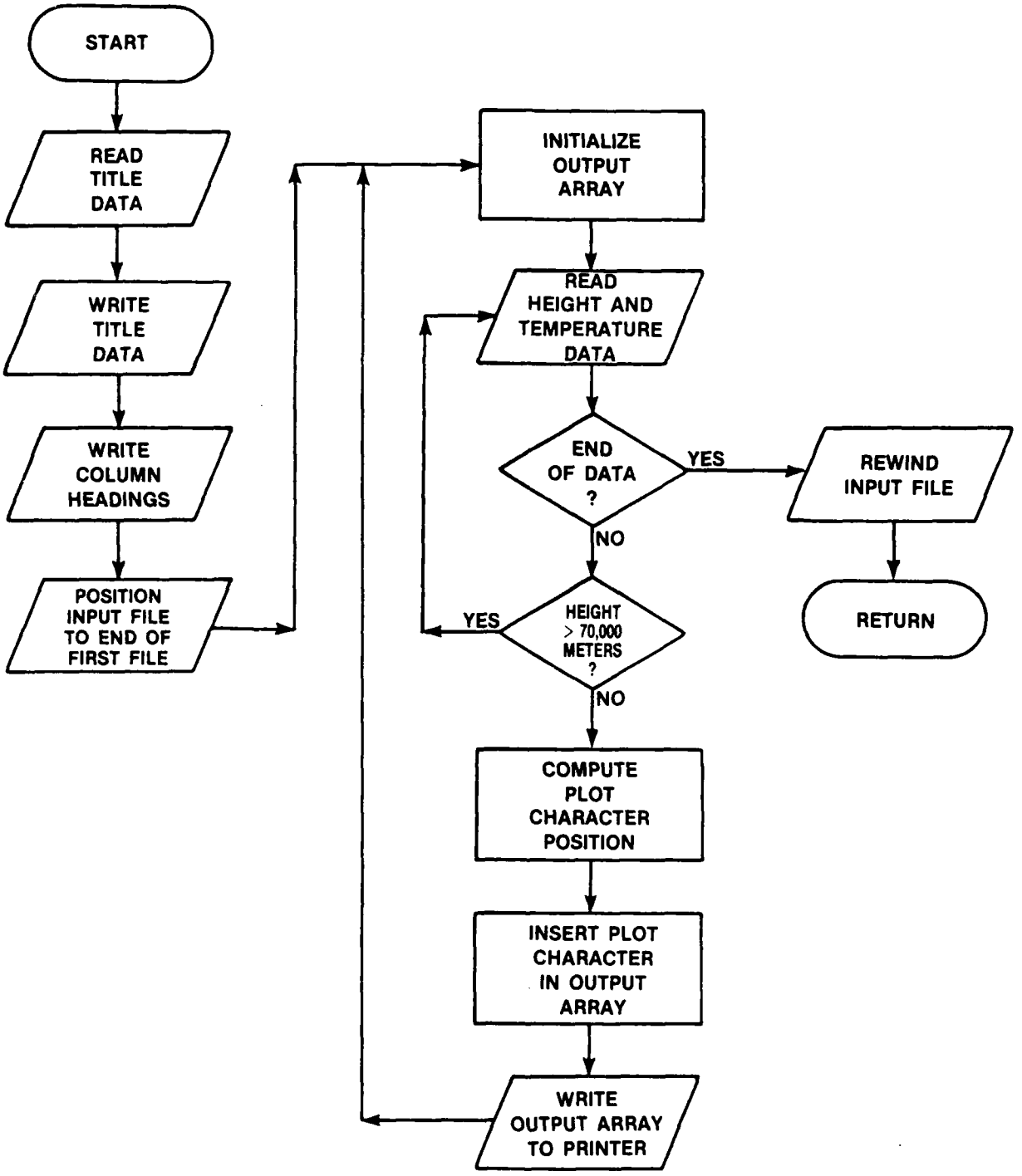
6.15.2 Subroutine PRESCOM



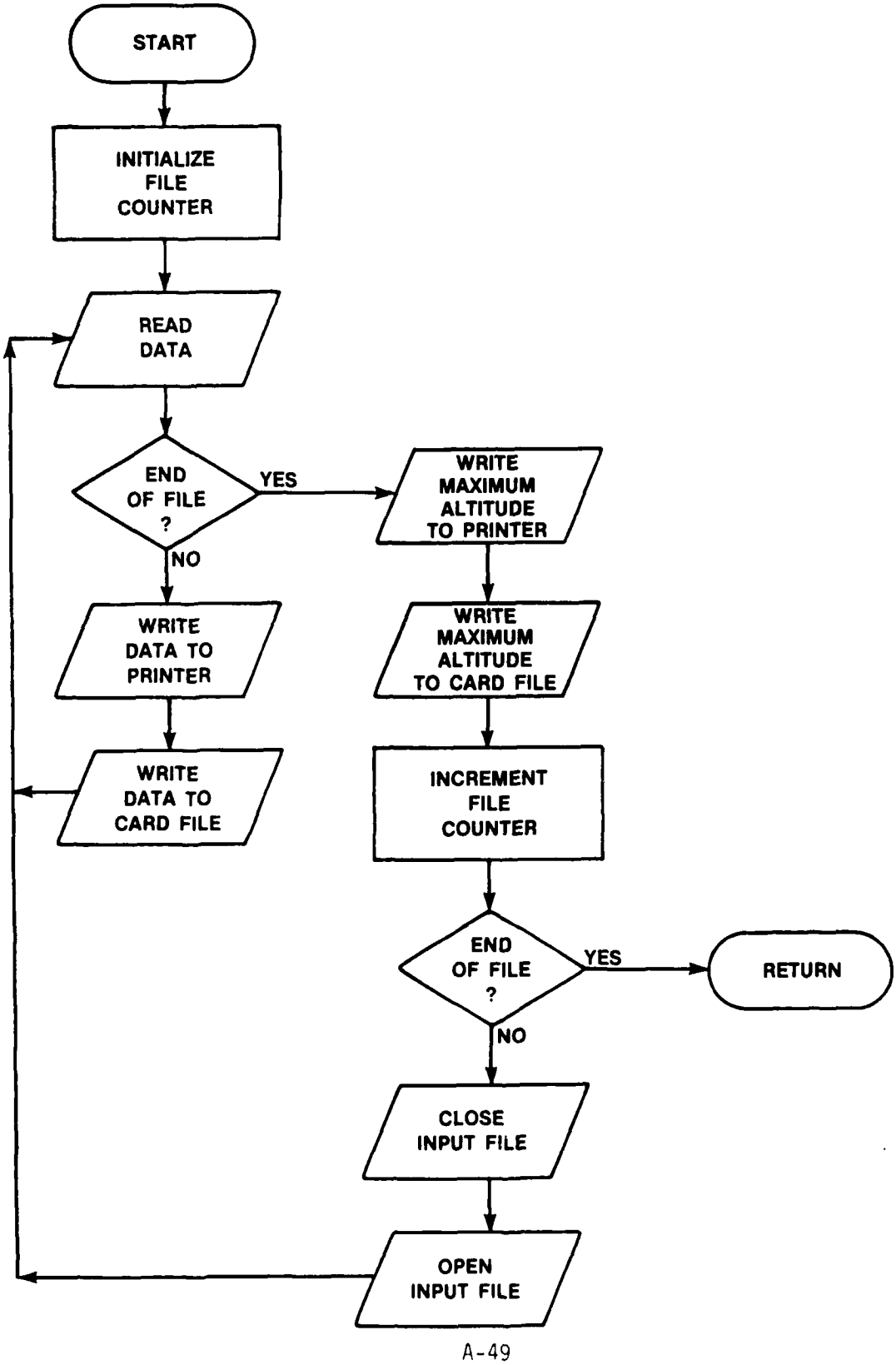
6.16 Subroutine ONEKILO



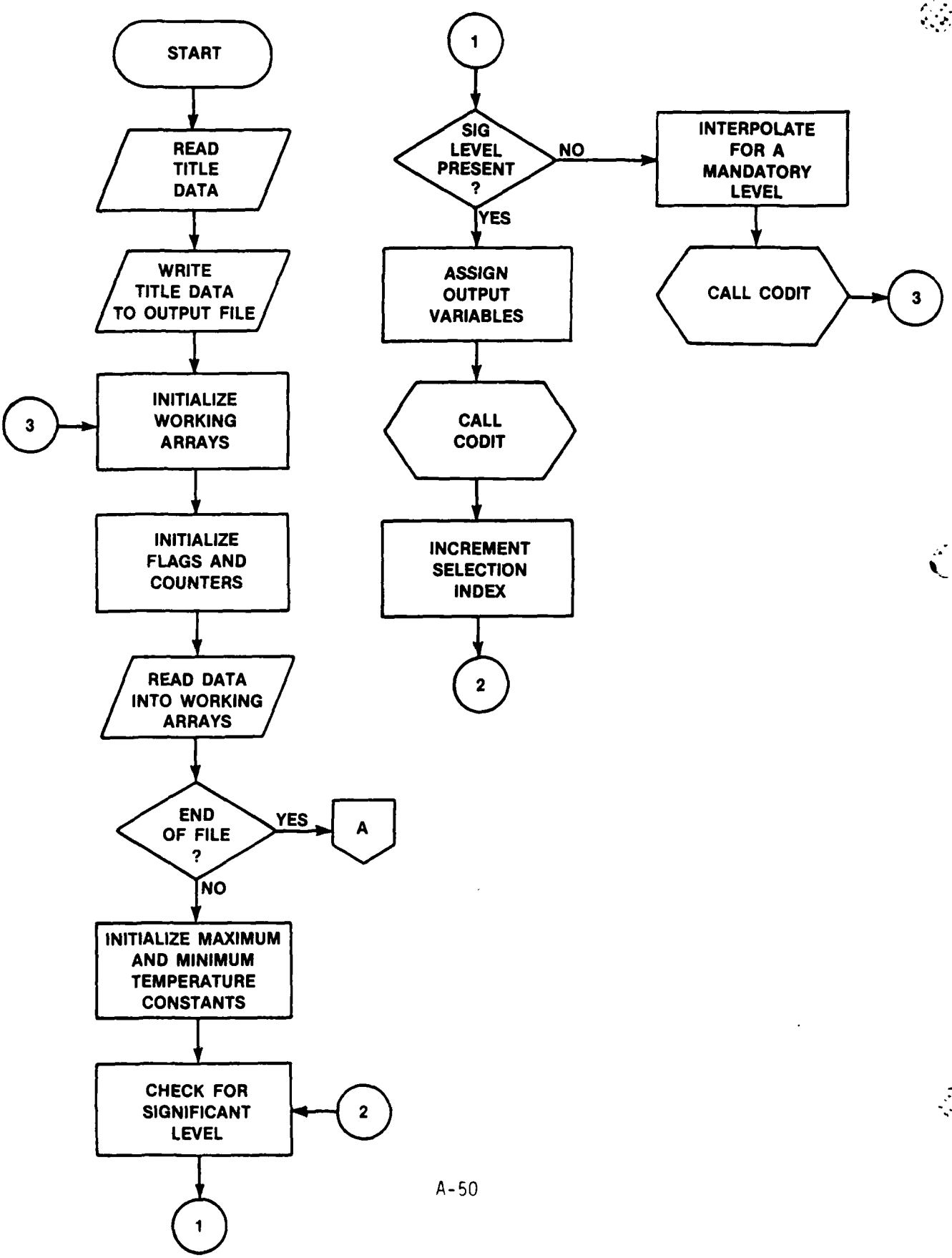
6.17 Subroutine PLOTCH



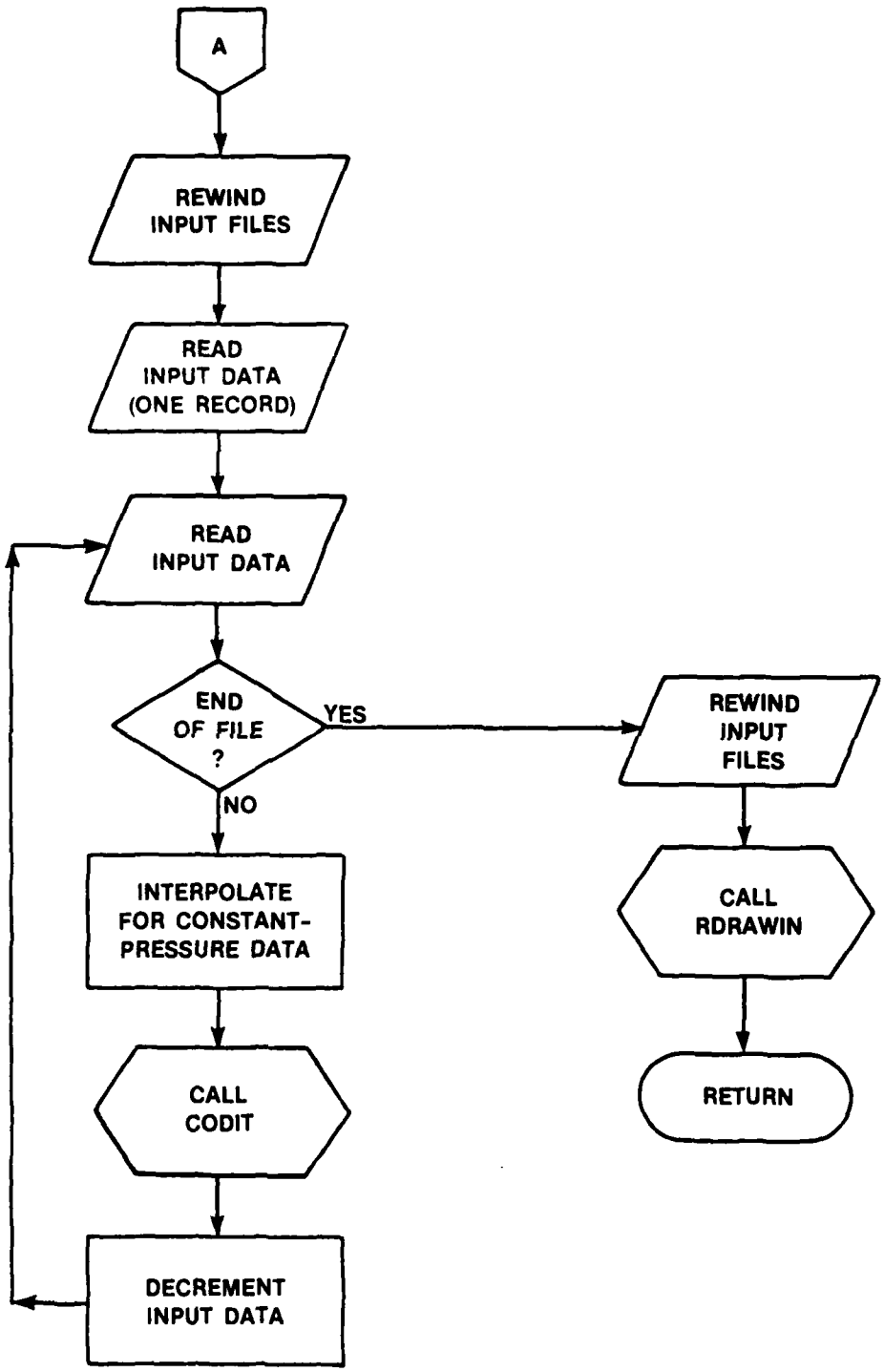
6.18 Subroutine PUTOUT



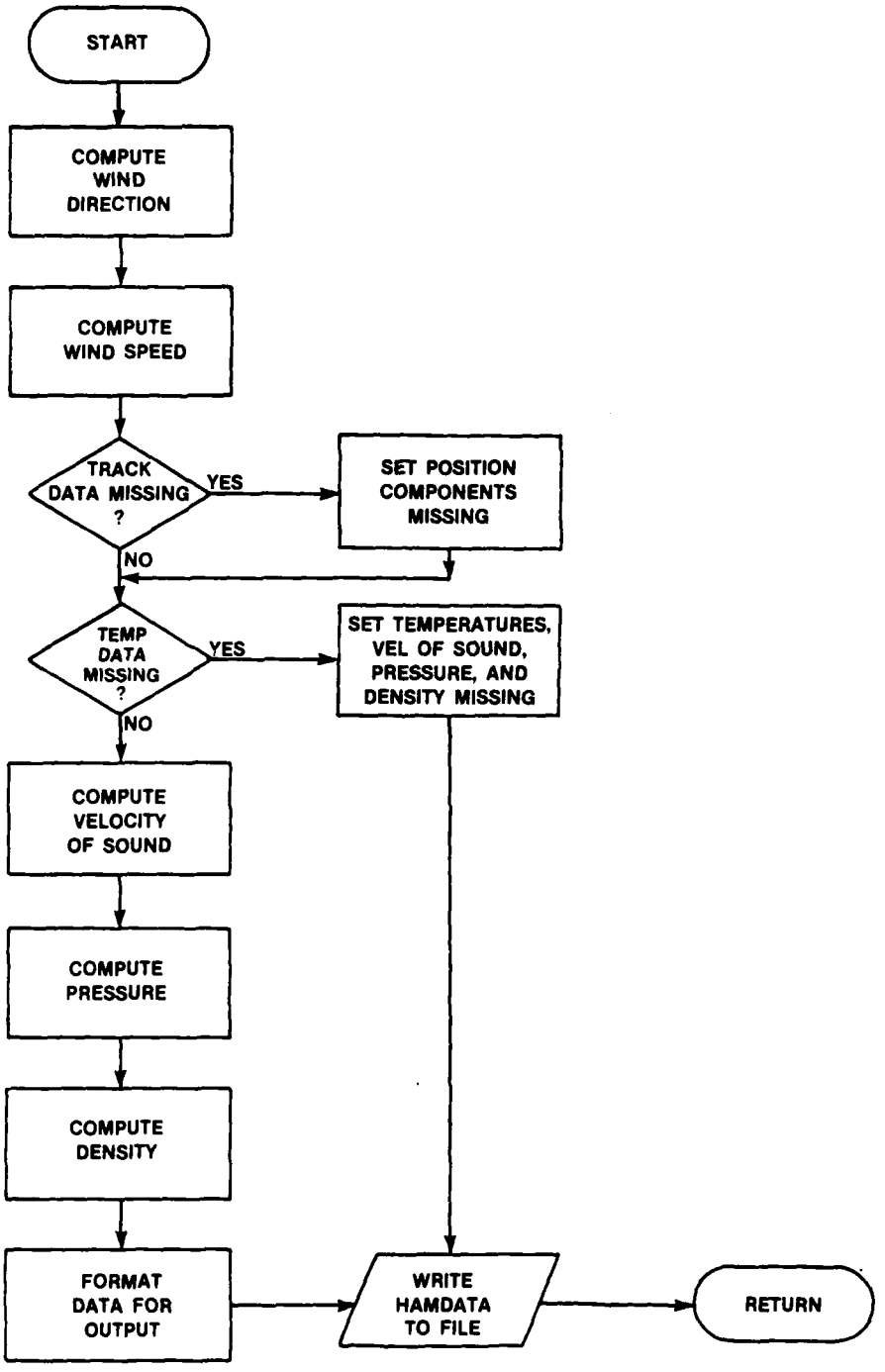
6.19.1 Subroutine ETFORM



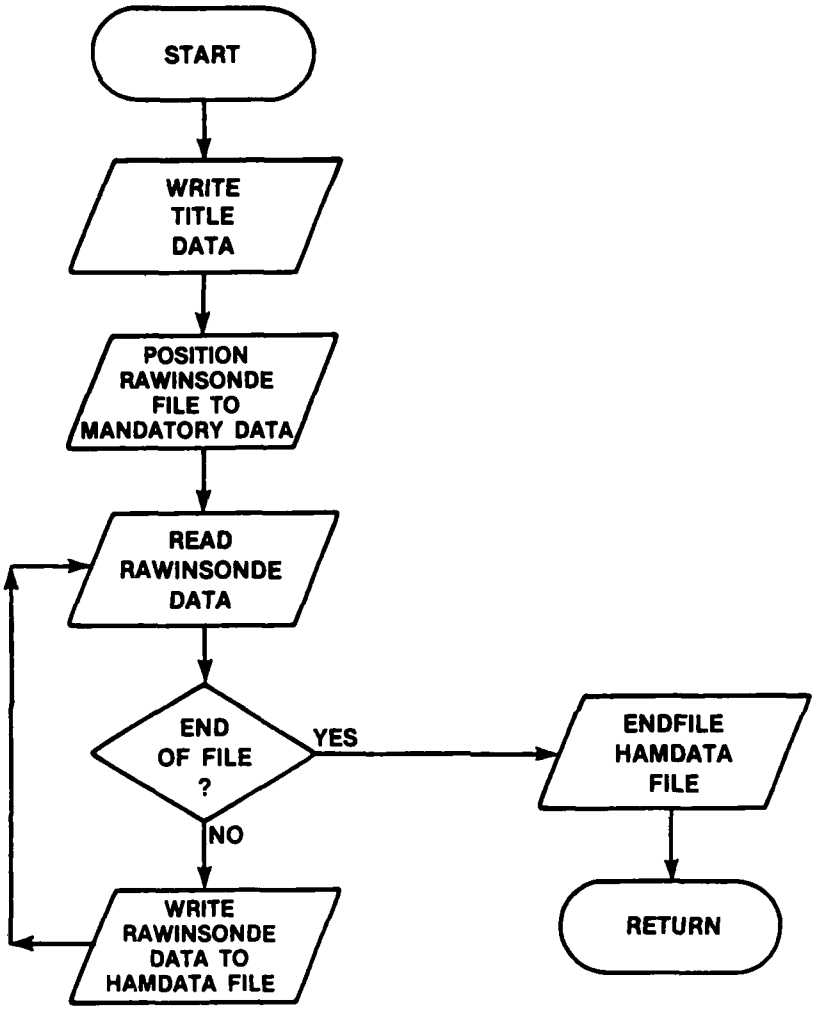
6.19.2 Subroutine ETFORM



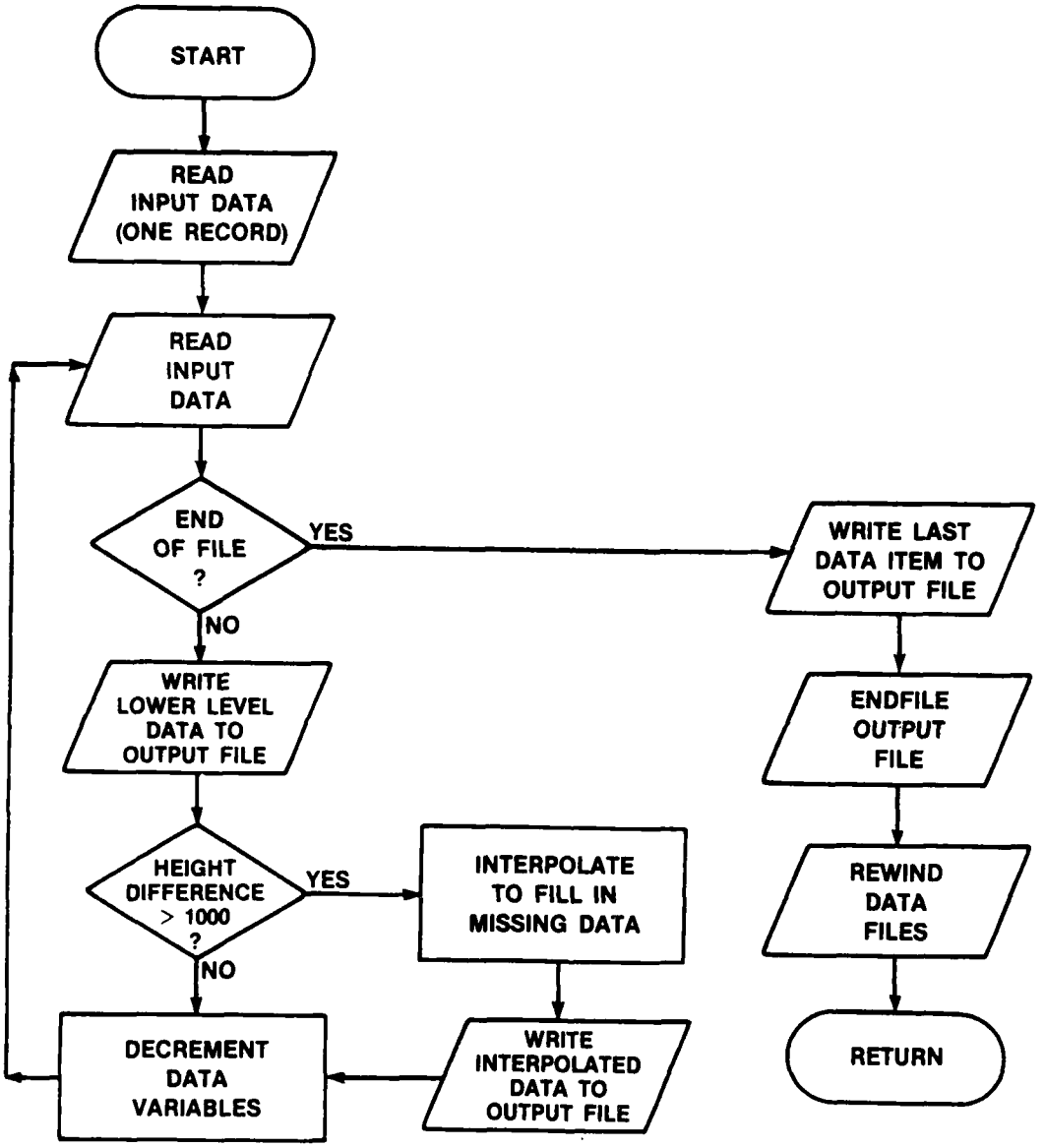
6.20 Subroutine CODIT



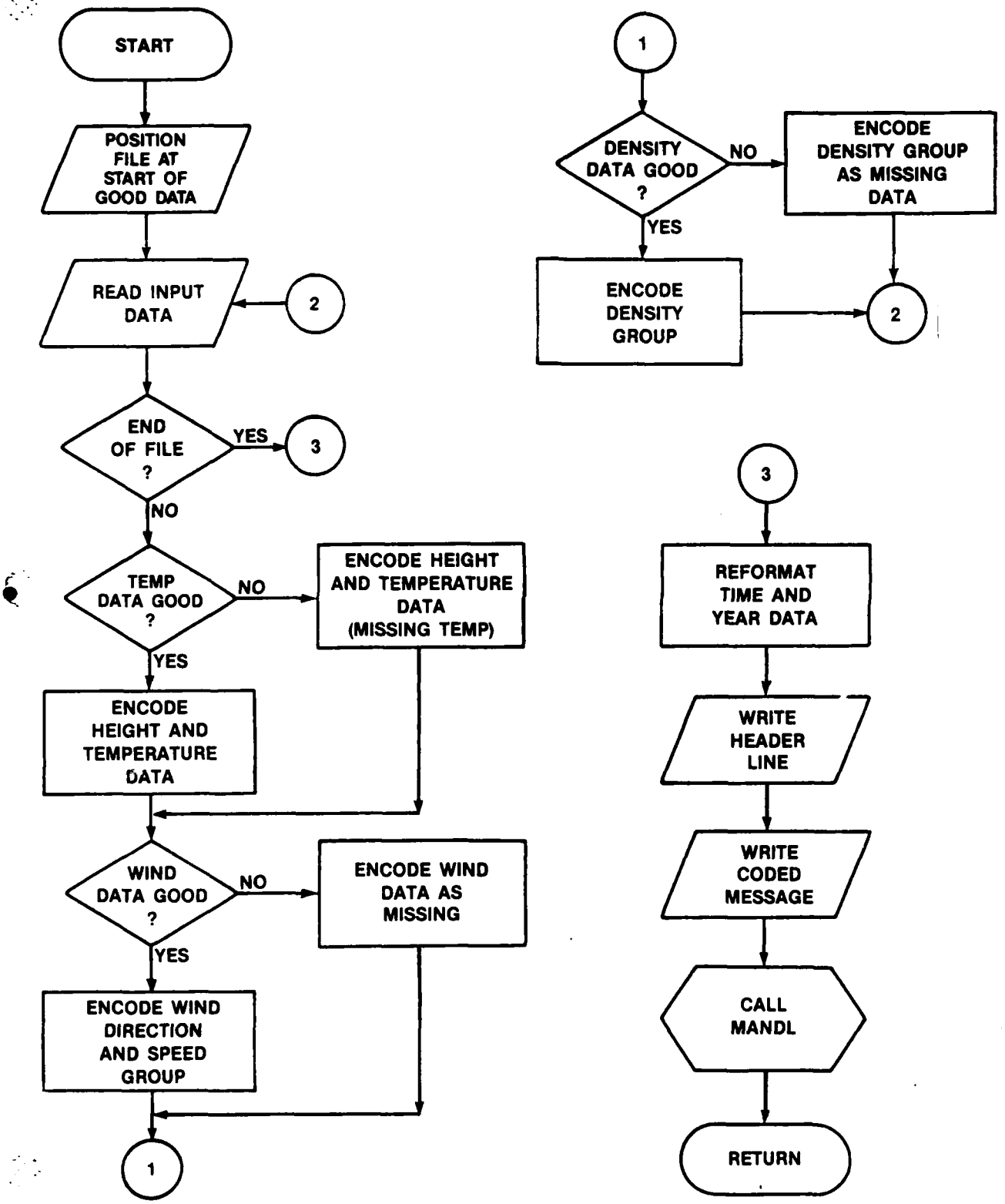
6.21 Subroutine RDRAWIN



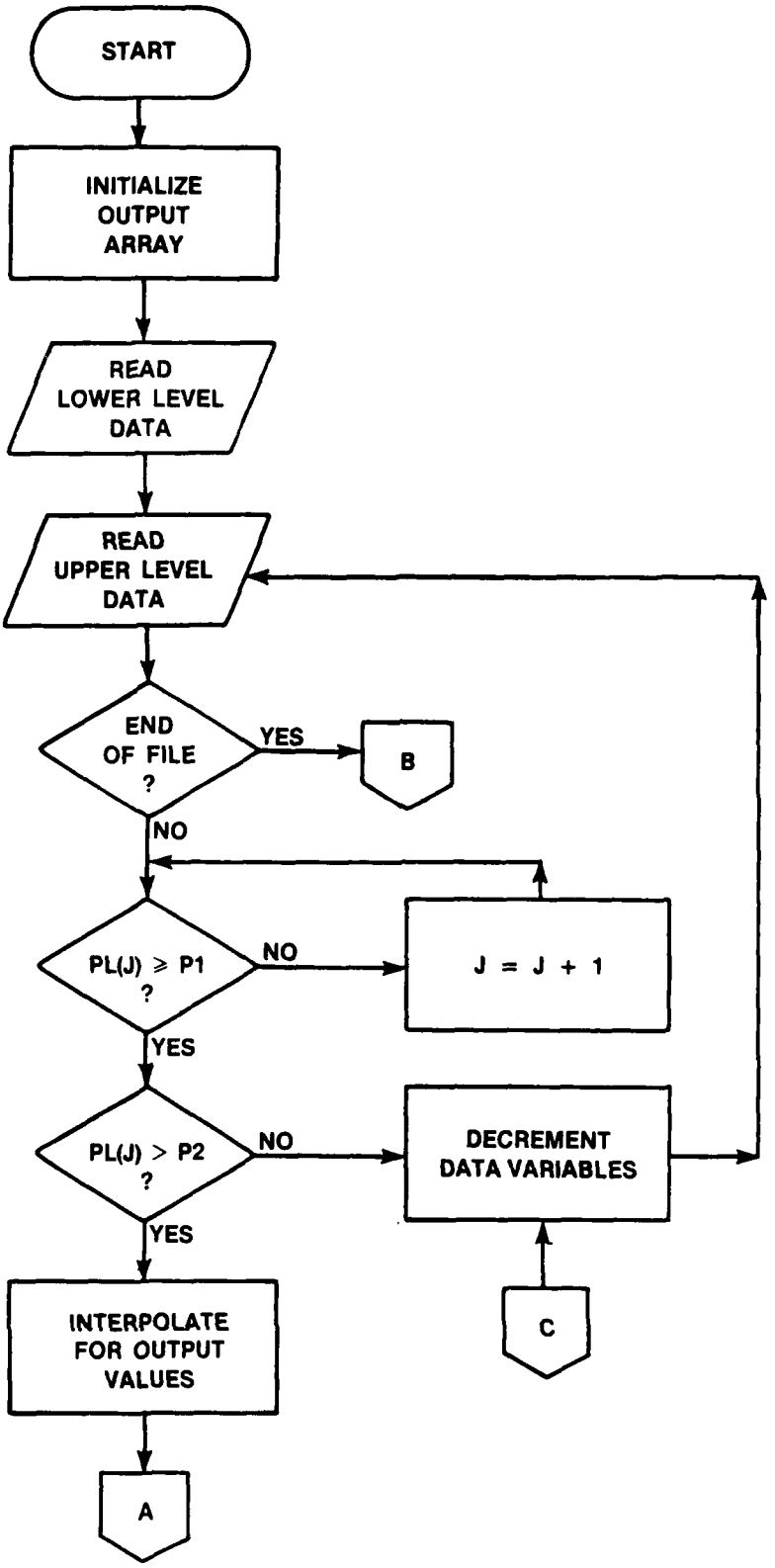
6.22 Subroutine INT



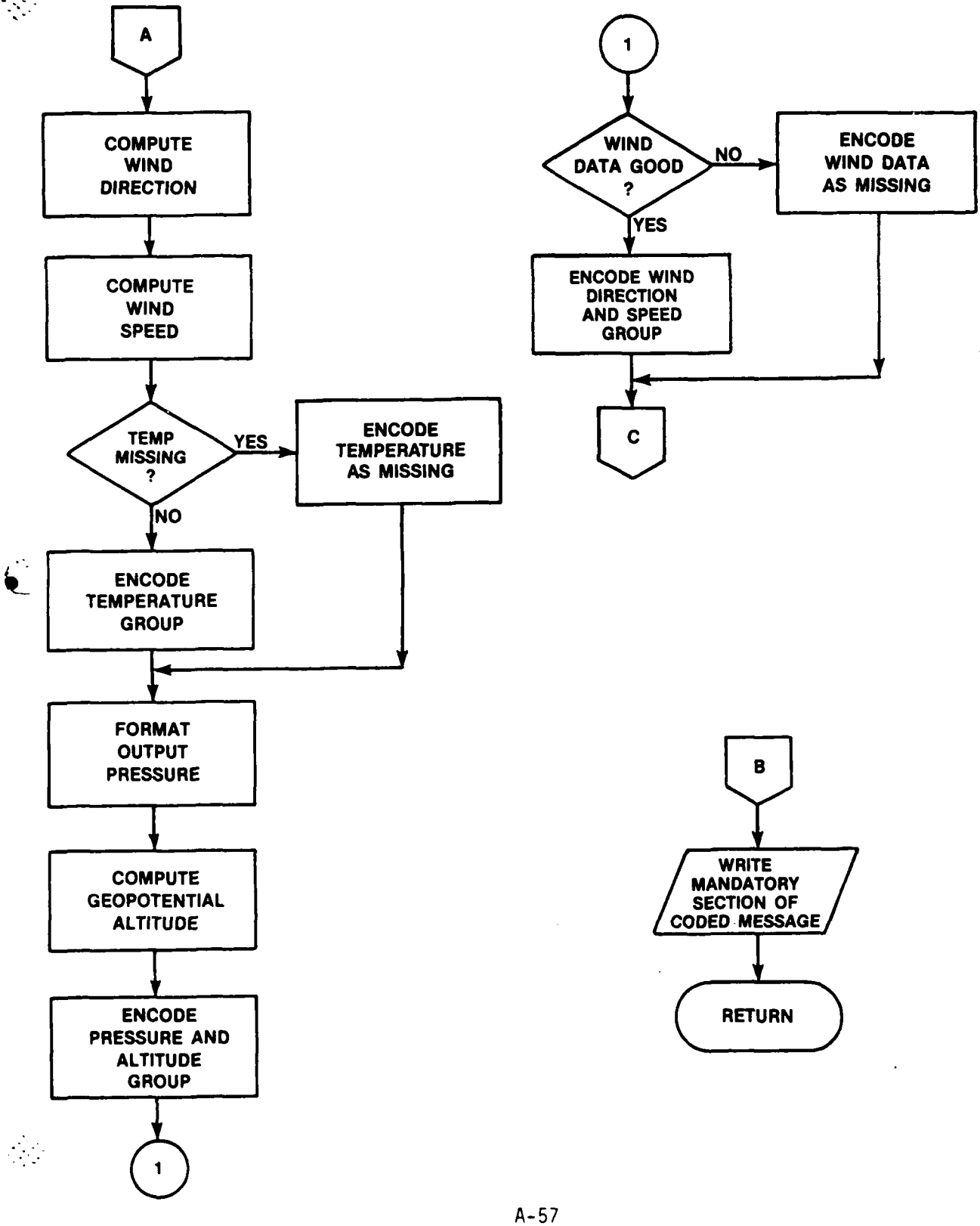
6.23 Subroutine ROCOB



6.24.1 Subroutine MANDL



6.24.2 Subroutine MANDL



7.0 MATHEMATICAL AND PHYSICAL CONSTANTS

7.1 Program ROCK

6371229.315	(Mean Average) radius of the Earth, meters
67.442	Constant in the hypsometric equation, *SMT*, List 1968

See attachment 9, table 1 for constants ATC, BTC, CTC, CTD, and DTC.

See attachment 12 for logs of mandatory pressures.

7.2 Subroutine SIMQ

None

7.3 Subroutine OUTPUT

348.38	Gas constant for dry air with pressure in millibars and density in grams/cubic meter
331.45	Speed of sound at zero degree Celsius, miles/second
273.15	Converts degrees Celsius to degrees Kelvin

7.4 Function WDIR

57.29578	Degrees/radian

7.5 Function VALUE

None

7.6 Subroutine GRAVITY

5	Station height of Cape Canaveral AFS in meters
4	Station height of Antigua AAFB in meters
79	Station height of Ascension AAFB in meters
28.29	Latitude of Cape Canaveral AFS, degrees
17.7	Latitude of Antigua AAFB, degrees
7.58	Latitude of Ascension AAFB, degrees (South)
57.29578	Degrees/radian
0.0026373 }	Gravity ratio constants from *SMT*, equation
0.0000059 }	for Table 168 (Bibliography No. 1)

7.7 Subroutine CHKOUT

0.9144	Yards to meters conversion factor
2.2	Constant used in Earth's curvature correction to elevation angle (Bibliography No. 2)

7.8 Subroutine RD46CH

86400	Number of seconds in a day
3600	Number of seconds in an hour
60	Number of seconds in a minute
0.125	
180	Decodes 46-character
8	Radar encoded data
1.953125	
90	

7.9 Subroutine TMPMERG

3600	Number of seconds in an hour
60	Number of seconds in a minute

7.10 Subroutine INTPTMP

None

7.11 Subroutine MIDINT

None

7.12 Subroutine BANDTC

9.80616	Acceleration of gravity at 45 degrees latitude

7.13 Subroutine COMPRSR

None

7.14 Subroutine TWOKM

None

7.15 Subroutine PRESCOM

None

7.16 Subroutine ONEKILO

1.94254	Meters/second to knots conversion factor
3.280833	Number of feet in a meter

7.17 Subroutine PLOTCH

None

7.18 Subroutine PUTOUT

None

7.19 Subroutine ETFORM

None

7.20 Subroutine CODIT

None

7.21 Subroutine RDRAWIN

None

7.22 Subroutine INT

None

7.23 Subroutine ROCOB

None

7.24 Subroutine MANDL

None

8.0 BIBLIOGRAPHY

1. List, R. J., "Smithsonian Meteorological Tables," Smithsonian Institution, Washington, D.C., Sixth Edition. Smithsonian Miscellaneous Collections, Vol. 114, 1958.

2. Gustafson, A. F., "The Error in Rawin Computations Due to Neglecting the Earth's Curvature," Bull., AMS, Vol 35, No. 7, pp. 295-300, September 1954.

3. Eddy, et al., "Determination of Winds from Meteorological Rocketsondes," University of Texas Report Number 2, University of Texas, November 1965.

4. Krumins, M. V. and Lyons, W.C., "Corrections for the Upper Atmosphere Temperatures Using a Thin Film Loop Mount," NOLTR 72-152, Naval Ordnance Laboratory, 22 June 1972.

ATTACHMENT 1

RAEMG CODE TABLES

RAEMG CODE Tables:

Table 1

Symbol R = reason for no report and ground equipment employed

Code Figures	
0	Launch not scheduled
1	Rocket motor failure
2	Instrument (or telemetry) signal not received
3	Ground tracking equipment failure
4	Range restriction prohibited launch
5	Weather prohibited launch
6	Lack of expendables prohibited launch
7	Radar only employed
8	Radar and telemetry equipment employed
9	Telemetry equipment employed

Tables 2 and 5

Symbol A = thermodynamic correction technique
or
G = wind correction technique

Table 3

Symbol E = method of reducing data

Code Figures	
0	Manually — nomogram
1	Electronic computer
2—8	Unassigned
9	Other method

Table 4

Symbol M = type of wind sensing equipment

Code Figures	
00	No wind sensor
01	Chaff, experimental
02	Chaff, metalized
03—09	Unassigned
10	Parachute, experimental
11	Parachute, 0.5 to 3.5 meters diameter
12	Parachute, 3.6 to 5.5 meters diameter
13	Parachute, greater than 5.5 meters diameter
14	Mesh decelerator, experimental
30	Starute, experimental
31	Starute, 0.5 to 3.5 meters diameter

Table 4 (continued)

Code Figures	
32	Starute, 3.6 to 5.5 meters diameter
33	Starute, greater than 5.5 meters diameter
50	Sphere, experimental
51	Sphere, inflatable
55	Grenade, experimental
60	Chemical trail, experimental
65	Meteor trail, experimental
70	Remote sensing, experimental

ATTACHMENT 2

SAMPLE COPY TEMPERATURE DATA WITH RESISTANCE VALUES

```
05 42
32 OF 67 56 1300 01-00W-110 1131
-5.146583 2111.744 -12.55431
.3010350 .9449720
.6020503 .9197127
.7781506 .9026190
.9030897 .8874129
.9999963 .8736342
1.178090 .8518973
1.301029 .8377756
1.477121 .7937536
1.602059 .7568310
1.845098 .7171425
1.903089 .7011677
1.954243 .6864206
1.995966 .6731461
2.176091 .6242682
2.301029 .5838424
2.477121 .5449169
2.602059 .5143810
2.778151 .4931103
2.903090 .4742095
2.999999 .4640126
3.176090 .4139492
99999999
611 0150
522 0194
756 0251
764 0283
600 0304
750 0345
739 0522
677 0703
599 0737
561 0772
530 0860
550 0948
500 1112
443 1158
430 1380
375 1680
314 1931
320 2004
249 2550
204 3303
```

ATTACHMENT 3

SAMPLE COPY TEMPERATURE DATA WITH CODED TEMPERATURE VALUES

```
01 08 07 14 1300 01UPJM-11A 21311
0779 0124
3708 3104
0566 0522
0983 1112
1037 2304
1105 2590
1147 2704
1159 3007
```

ATTACHMENT 4

SAMPLE COPY OF GMD-4 TAER DATA (ROKE OUTPUT)

49650.0	203.193	67.500	76016.1
49656.0	202.663	67.430	76287.6
49662.0	202.134	67.413	75963.1
49668.0	201.641	67.217	75917.6
49674.0	200.796	67.133	75726.7
49680.0	200.142	67.085	71550.3
49686.0	199.567	67.069	70954.4
49692.0	198.992	66.967	70329.1
49698.0	198.462	66.906	69739.9
49704.0	197.958	66.832	69175.3
49710.0	197.459	66.768	68645.6
49716.0	196.963	66.662	68137.2
49722.0	196.399	66.561	67643.8
49728.0	195.805	66.619	67171.8
49734.0	195.174	66.264	66729.8
49740.0	194.520	66.134	66305.3
49746.0	193.915	65.988	65907.7
49752.0	193.331	65.948	65507.8
49758.0	192.772	65.770	65110.0
49764.0	192.187	65.602	64727.3
49770.0	191.575	65.484	64350.4
49776.0	190.952	65.371	63974.2
49782.0	190.338	65.249	63603.8
49788.0	189.791	65.161	63267.9
49794.0	189.239	65.075	62916.1
49800.0	188.661	64.994	62581.2
49806.0	188.051	64.909	62233.7
49812.0	187.438	64.813	61891.8
49818.0	186.833	64.718	61559.7
49824.0	186.267	64.623	61240.6
49830.0	185.713	64.565	60928.2
49836.0	185.178	64.472	60612.8
49842.0	184.656	64.399	60301.8
49848.0	184.155	64.304	60003.2
49854.0	183.686	64.201	59721.5
49860.0	183.297	64.103	59454.4
49878.0	182.768	63.920	58650.5
49896.0	181.234	63.573	57874.9
49914.0	179.119	63.360	57096.9
49932.0	178.803	63.166	56344.7
49950.0	177.520	62.958	55622.6
49968.0	176.354	62.717	54939.8
49986.0	175.142	62.640	54300.1
50004.0	173.975	62.211	53695.7
50022.0	172.961	61.997	53140.6
50040.0	171.774	61.697	52623.1
50058.0	170.769	61.438	52134.1
50076.0	169.773	61.224	51666.3
50094.0	168.739	61.161	51190.8
50112.0	167.749	60.942	50690.2
50130.0	167.063	60.586	50261.0
50148.0	165.753	60.274	49861.6
50166.0	164.824	60.056	49485.4
50184.0	163.166	59.671	49105.4
50202.0	161.883	59.482	48712.0
50220.0	160.798	59.268	48295.2
50238.0	160.020	59.152	47876.8
50256.0	159.404	59.020	47474.1
50274.0	159.057	58.900	47073.8
50292.0	158.331	58.827	46655.0
50310.0	158.800	58.819	46201.1
50328.0	158.804	58.858	45747.9
50346.0	158.987	58.908	45292.0
50364.0	159.221	58.939	44871.4

BOOK 3

*0392.0	171.437	58.041	44496.0
50400.0	173.[illegible]	58.[illegible]	44[illegible].0
50418.0	173.176	58.762	43814.8
50436.0	174.[illegible]	58.[illegible]	43660.3
50454.0	175.222	58.218	43353.0
50472.0	176.530	57.167	43172.6
50490.0	177.787	57.505	43057.5
50508.0	179.068	57.156	42938.8
50526.0	180.365	56.832	42840.9
50544.0	181.673	56.[illegible]	42651.9
50562.0	182.976	56.334	42338.7
50580.0	184.283	56.142	42011.8
50598.0	185.628	55.930	41778.1
50616.0	186.966	55.661	41615.0
50634.0	188.270	55.350	41446.1
50652.0	189.491	55.012	41321.3
50670.0	190.805	54.585	41180.2
50688.0	192.141	54.368	41048.2
50706.0	193.431	54.049	40958.0
50724.0	194.600	53.595	40868.9
50742.0	195.869	53.313	40798.1
50760.0	197.157	52.917	40752.2
*0820.0	198.777	51.528	40625.7
50880.0	201.706	50.394	40490.9
50940.0	204.274	49.294	40350.5
51000.0	206.471	48.122	40245.1
51060.0	208.288	46.959	40204.0
51120.0	209.689	45.860	40161.6
51180.0	210.580	44.957	40040.0
51240.0	211.006	44.256	39918.7
51300.0	211.050	43.596	39807.7
51360.0	210.982	42.821	39700.0
51420.0	210.855	41.962	39600.1
51480.0	210.731	41.125	39494.4
51540.0	210.508	40.435	39421.6
51600.0	210.192	39.847	39385.0
51660.0	209.838	39.316	39315.0
51720.0	209.485	38.794	39242.6
51780.0	209.226	38.335	38733.0
51840.0	208.950	37.979	39455.2
51900.0	208.810	37.690	39197.0

ATTACHMENT 5

SAMPLE COPY OF MATTY DECK

46955.0	73.[illegible]	[illegible]	[illegible]
46971.0	[illegible]	[illegible]	[illegible]
46977.0	74.[illegible]	[illegible]	[illegible]
46983.0	[illegible]	[illegible]	[illegible]
46989.0	[illegible]	[illegible]	[illegible]
46995.0	[illegible]	[illegible]	[illegible]
47001.0	[illegible]	[illegible]	[illegible]
47007.0	[illegible]	[illegible]	[illegible]
47013.0	[illegible]	[illegible]	[illegible]
47019.0	[illegible]	[illegible]	[illegible]
47025.0	74.109	71.023	66[illegible].7
47031.0	[illegible]	[illegible]	[illegible]
47037.0	[illegible]	[illegible]	[illegible]
47043.0	[illegible]	[illegible]	[illegible]
47049.0	[illegible]	[illegible]	[illegible]
47055.0	73.272	71.850	62040.9
47061.0	[illegible]	[illegible]	[illegible]
47067.0	72.851	72.118	61089.8
47073.0	[illegible]	[illegible]	[illegible]
47079.0	71.759	72.323	60203.7
47085.0	[illegible]	[illegible]	[illegible]
47091.0	[illegible]	[illegible]	59393.6
47097.0	[illegible]	[illegible]	59012.5
47103.0	[illegible]	[illegible]	[illegible]
47109.0	[illegible]	[illegible]	[illegible]
47115.0	[illegible]	[illegible]	[illegible]
47121.0	[illegible]	[illegible]	[illegible]
47127.0	55.354	72.451	57132.7
47133.0	66.393	72.539	[illegible]
47139.0	[illegible]	[illegible]	56378.5
47145.0	[illegible]	[illegible]	[illegible]
47151.0	[illegible]	[illegible]	[illegible]
47157.0	[illegible]	[illegible]	[illegible]
47163.0	[illegible]	[illegible]	[illegible]
47169.0	[illegible]	[illegible]	[illegible]
47175.0	[illegible]	[illegible]	[illegible]
47181.0	[illegible]	[illegible]	[illegible]
47187.0	[illegible]	[illegible]	[illegible]
47193.0	[illegible]	[illegible]	[illegible]
47199.0	[illegible]	[illegible]	[illegible]
47205.0	59.465	[illegible]	52477.3
47211.0	[illegible]	[illegible]	[illegible]
47217.0	[illegible]	[illegible]	[illegible]
47223.0	[illegible]	[illegible]	[illegible]
47229.0	[illegible]	[illegible]	[illegible]
47235.0	[illegible]	[illegible]	[illegible]
47241.0	[illegible]	[illegible]	[illegible]
47247.0	[illegible]	[illegible]	[illegible]
47253.0	[illegible]	[illegible]	[illegible]
47259.0	[illegible]	[illegible]	[illegible]
47265.0	[illegible]	[illegible]	[illegible]
47271.0	[illegible]	[illegible]	[illegible]
47277.0	[illegible]	[illegible]	[illegible]
47283.0	[illegible]	[illegible]	[illegible]
47289.0	[illegible]	[illegible]	[illegible]
47295.0	[illegible]	[illegible]	[illegible]
47301.0	[illegible]	[illegible]	[illegible]
47307.0	[illegible]	[illegible]	[illegible]
47313.0	[illegible]	[illegible]	[illegible]
47319.0	[illegible]	[illegible]	[illegible]
47325.0	[illegible]	[illegible]	[illegible]
47331.0	[illegible]	[illegible]	[illegible]
47337.0	[illegible]	[illegible]	[illegible]

47427.	[illegible]	[illegible]	[illegible]
47451.	[illegible]	[illegible]	[illegible]
47475.	[illegible]	[illegible]	[illegible]
47499.	[illegible]	[illegible]	[illegible]
47523.	[illegible]	[illegible]	[illegible]
47547.	[illegible]	[illegible]	[illegible]
47571.	[illegible]	[illegible]	[illegible]
47595.	[illegible]	[illegible]	[illegible]
47619.	314.322	74.154	40154.3
47643.	315.[illegible]	[illegible]	[illegible]
47667.	312.743	77.[illegible]	[illegible]
47691.	[illegible]	[illegible]	[illegible]
47715.	[illegible]	[illegible]	[illegible]
47739.	304.[illegible]	74.523	38574.3
47763.	302.[illegible]	73.[illegible]	38342.4
47787.	300.[illegible]	72.741	38145.9
47811.	[illegible]	[illegible]	37907.4
47835.	297.[illegible]	70.[illegible]	37733.4
47859.	[illegible]	[illegible]	[illegible]
47931.	292.375	66.406	37505.7
47979.	290.052	64.197	37441.2
48027.	288.037	62.123	37456.9
48075.	[illegible]	[illegible]	37516.0
48123.	285.477	59.124	37624.7
48171.	[illegible]	[illegible]	37796.6
48219.	284.403	54.253	38086.7
48267.	283.532	52.548	38355.2
48315.	282.[illegible]	50.756	38683.7
48363.	[illegible]	49.[illegible]	38980.4
48411.	[illegible]	47.315	39346.[illegible]
48459.	[illegible]	45.[illegible]	39825.7
48507.	279.[illegible]	44.014	40369.8
48555.	278.[illegible]	42.717	40839.[illegible]
48603.	277.[illegible]	41.421	41319.3
48651.	277.[illegible]	40.239	41921.7
48699.	277.[illegible]	38.[illegible]	42214.1
48747.	277.773	37.944	42622.3
48795.	278.[illegible]	36.939	43025.2
48843.	278.444	35.921	43489.[illegible]
48891.	278.[illegible]	34.892	44013.6
48939.	278.[illegible]	34.[illegible]	44479.9
48987.	278.[illegible]	33.[illegible]	44980.[illegible]
49035.	278.[illegible]	33.[illegible]	45[illegible].[illegible]
49083.	277.758	31.427	45932.6
49131.	277.[illegible]	30.[illegible]	46483.2
49179.	278.[illegible]	29.[illegible]	46856.2
49227.	278.[illegible]	29.[illegible]	47264.[illegible]
49275.	278.[illegible]	28.[illegible]	47639.[illegible]
49323.	[illegible]	27.[illegible]	[illegible]
49371.	[illegible]	26.[illegible]	49294.4
49419.	278.[illegible]	26.[illegible]	49571.4
49467.	278.[illegible]	25.[illegible]	50778.9
49515.	278.[illegible]	24.[illegible]	51404.2
49563.	278.[illegible]	[illegible]	[illegible]
49611.	278.[illegible]	23.[illegible]	52296.[illegible]
49659.	278.[illegible]	23.[illegible]	52817.6
49707.	278.[illegible]	22.[illegible]	53306.1
49755.	278.[illegible]	22.[illegible]	53848.[illegible]

ATTACHMENT 6

SAMPLE COPY OF 46-CHARACTER DATA

79112154[illegible]	[illegible]
79112154[illegible]	[illegible]
79112154[illegible]	67
79112154[illegible]	[illegible]
79112154[illegible]	[illegible]
79112154[illegible]	70
79112154[illegible]	71
79112154[illegible]	72
79112154[illegible]	73
79112154[illegible]	74
79112154[illegible]	75
79112154[illegible]	76
79112154[illegible]	77
79112154[illegible]	78
79112154[illegible]	79
79112154[illegible]	80
79112154[illegible]	81
79112154[illegible]	82
79112154[illegible]	83
79112154[illegible]	84
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79112154[illegible]	86
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79112154[illegible]	91
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79112154[illegible]	96
79112154[illegible]	97
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79112154[illegible]	99
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79112154[illegible]	102
79112154[illegible]	103
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79112154[illegible]	105
79112154[illegible]	106
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79112154[illegible]	115
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79112154[illegible]	117
79112154[illegible]	118
79112154[illegible]	119
79112154[illegible]	120
79112154[illegible]	121
79112154[illegible]	122
79112154[illegible]	123
79112154[illegible]	124

ATTACHMENT 7

SAMPLE COPY OF PRINTER OUTPUT
(SEE ATTACHMENT 5 FOR INPUT DATA)

49250	171	24	269.41	-1.65	.6851	1.1445	39.07	329.18	.005
49500	169	25	269.13	-1.77	.8579	1.1105	40.27	329.00	.005
49750	166	25	268.85	-1.88	.8316	1.0775	41.48	328.83	.005
50000	163	26	268.58	-1.99	.8060	1.0455	42.69	328.66	.005
50250	162	26	268.89	-2.05	.7813	1.0123	43.46	328.85	.002
50500	162	26	269.44	-2.08	.7574	.9793	44.06	329.19	.001
50750	161	26	270.00	-2.12	.7343	.9474	44.65	329.53	.001
51000	160	26	270.55	-2.15	.7118	.9166	45.25	329.87	.001
51250	160	26	271.11	-2.19	.6900	.8867	45.84	330.21	.001
51500	160	26	271.44	-2.21	.6689	.8585	46.39	330.41	.000
51750	161	26	271.32	-2.23	.6486	.8326	46.85	330.37	.002
52000	162	26	271.30	-2.24	.6288	.8075	47.32	330.33	.002
52250	163	26	271.23	-2.25	.6097	.7831	47.78	330.28	.002
52500	164	26	271.16	-2.27	.5911	.7595	48.24	330.24	.002
52750	166	26	271.09	-2.28	.5731	.7366	48.70	330.20	.002
53000	167	26	270.95	-2.33	.5557	.7145	49.64	330.11	.002
53250	167	26	270.76	-2.41	.5387	.6931	50.83	330.00	.002
53500	168	26	270.58	-2.48	.5223	.6725	52.03	329.89	.002
53750	169	26	270.40	-2.56	.5063	.6524	53.22	329.78	.002
54000	170	26	270.21	-2.63	.4909	.6329	54.41	329.66	.002
54250	170	27	270.03	-2.71	.4759	.6140	55.61	329.55	.002
54500	171	26	269.77	-2.77	.4614	.5958	56.62	329.39	.003
54750	174	25	269.35	-2.80	.4472	.5784	57.26	329.14	.007
55000	177	24	268.94	-2.84	.4335	.5615	57.90	328.89	.007
55250	180	22	268.52	-2.87	.4201	.5451	58.54	328.63	.007
55500	183	21	268.11	-2.90	.4072	.5292	59.18	328.38	.007
55750	187	20	267.69	-2.94	.3947	.5137	59.82	328.12	.007
56000	191	19	267.28	-2.97	.3826	.4987	60.46	327.87	.007
56250	196	18	266.65	-3.03	.3708	.4844	61.22	327.48	.007
56500	201	17	265.50	-3.16	.3591	.4712	62.29	326.77	.008
56750	207	16	264.35	-3.28	.3478	.4584	63.35	326.07	.008
57000	214	15	263.20	-3.41	.3369	.4460	64.42	325.36	.008
57250	221	14	262.05	-3.53	.3264	.4339	65.49	324.65	.008
57500	229	14	260.90	-3.66	.3161	.4221	66.55	323.93	.008
57750	237	14	259.75	-3.78	.3062	.4107	67.62	323.22	.008
58000	245	14	258.60	-3.91	.2966	.3995	68.68	322.50	.008
58129	249	14	258.01	-3.97	.2917	.3939	69.24	322.13	.008

MAXIMUM ALTITUDE 61559

47337.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-13.[illegible]	[illegible]	-2066.54	-1747.27
47313.00	47.237	[illegible]	[illegible]	43067.64	[illegible]	[illegible]	33	[illegible]	-12.[illegible]	2.23	-2066.54	-1744.93
47314.00	[illegible]	[illegible]	[illegible]	42774.79	[illegible]	[illegible]	39	[illegible]	-12.[illegible]	2.20	-2048.26	-1738.53
47325.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	45	[illegible]	-11.[illegible]	2.27	-2084.83	-1774.92
47331.00	[illegible]	[illegible]	[illegible]	42514.70	13	8	51	[illegible]	-10.[illegible]	2.34	-2084.83	-1775.92
47337.00	42.779	[illegible]	[illegible]	42343.64	13	9	57	[illegible]	-10.[illegible]	2.36	-2057.40	-1756.23
47343.00	41.709	[illegible]	[illegible]	42159.66	13	9	3	6.00	-10.73	2.51	-2039.11	-1731.15
47349.00	40.713	[illegible]	[illegible]	41999.61	13	9	9	6.00	-9.15	2.53	-2007.54	-1703.50
47355.00	39.691	[illegible]	[illegible]	41830.04	13	9	15	6.00	-8.96	2.36	-1965.96	-1695.68
47373.00	38.693	[illegible]	[illegible]	41150.63	13	9	33	24.00	-14.09	1.67	-1891.38	-1598.53
47403.00	36.402	[illegible]	[illegible]	40474.11	13	10	3	24.00	-19.63	1.11	-1805.94	-1691.32
47427.00	18.114	[illegible]	[illegible]	39821.00	13	10	27	24.00	-25.72	.39	-1677.92	-1632.76
47451.00	4.955	[illegible]	[illegible]	39209.53	13	10	51	24.00	-27.87	.07	-1545.34	-1528.69
47475.00	355.335	[illegible]	[illegible]	38658.74	13	11	15	24.00	875.90	-.54	-1341.88	-1376.95
47499.00	346.573	[illegible]	[illegible]	38163.10	13	11	39	24.00	-21.88	-1.25	-1140.71	-1239.10
47523.00	340.194	[illegible]	[illegible]	37708.50	13	12	3	24.00	-19.94	-1.07	-1049.27	-1136.52
47547.00	333.423	[illegible]	[illegible]	37268.00	13	12	27	24.00	-18.94	-1.52	-921.26	-1056.24
47571.00	328.150	[illegible]	[illegible]	36880.40	13	12	51	24.00	-13.18	-1.78	-843.53	-1013.99
47595.00	323.337	[illegible]	[illegible]	36479.41	13	13	15	24.00	-11.88	-1.86	-811.53	-1002.47
47619.00	319.022	[illegible]	[illegible]	36075.34	13	13	39	24.00	-10.94	-1.86	-806.96	-1010.18
47643.00	315.505	[illegible]	[illegible]	35655.80	13	14	3	24.00	-8.79	-1.97	-820.67	-1048.85
47667.00	312.793	[illegible]	[illegible]	35236.69	13	14	27	24.00	-6.78	-2.30	-761.24	-1047.77
47691.00	309.529	[illegible]	[illegible]	34819.37	13	14	51	24.00	-8.16	-2.20	-754.38	-1043.30
47715.00	307.224	[illegible]	[illegible]	34410.42	13	15	15	24.00	-5.76	-2.46	-676.66	-1022.38
47739.00	304.836	[illegible]	[illegible]	34021.22	13	15	39	24.00	-5.97	-2.42	-610.36	-972.99
47763.00	302.573	[illegible]	[illegible]	33660.53	13	16	3	24.00	-5.65	-2.35	-530.35	-901.74
47787.00	300.604	[illegible]	[illegible]	33322.63	13	16	27	24.00	-4.92	-2.36	-460.34	-844.74
47811.00	298.929	[illegible]	[illegible]	32995.89	13	16	51	24.00	-4.19	-2.33	-406.91	-816.85
47835.00	297.513	[illegible]	[illegible]	32683.16	13	17	15	24.00	-3.54	-2.55	-306.32	-781.83
47859.00	296.333	[illegible]	[illegible]	32401.56	13	17	39	48.00	-3.73	-2.63	-241.17	-771.72
47931.00	292.379	[illegible]	[illegible]	31447.42	13	18	51	48.00	-2.70	-2.85	-133.73	-772.96
47979.00	290.652	[illegible]	[illegible]	30844.92	13	19	39	48.00	-2.15	-2.76	-73.15	-753.12
48027.00	289.097	[illegible]	[illegible]	30271.56	13	20	27	48.00	-2.02	-2.72	16.60	-716.71
48075.00	287.663	[illegible]	[illegible]	29727.12	13	21	15	48.00	-1.72	-2.57	69.72	-680.54
48123.00	286.477	[illegible]	[illegible]	29215.56	13	22	3	48.00	-1.48	-2.43	123.44	-639.44
48171.00	285.706	[illegible]	[illegible]	28740.66	13	22	51	48.00	-.96	-2.32	149.74	-593.61
48219.00	284.459	[illegible]	[illegible]	28303.64	13	23	39	48.00	-1.62	-2.40	340.61	-546.28
48267.00	283.532	[illegible]	[illegible]	27882.76	13	24	27	48.00	-1.10	-2.13	305.18	-526.10
48315.00	282.369	[illegible]	[illegible]	27438.08	13	25	15	48.00	-1.45	-2.24	374.90	-555.86
48363.00	281.548	[illegible]	[illegible]	25973.26	13	26	3	48.00	-1.03	-2.12	339.47	-581.02
48411.00	280.694	[illegible]	[illegible]	26499.98	13	26	51	48.00	-1.07	-2.18	420.62	-591.61
48459.00	280.149	[illegible]	[illegible]	26076.09	13	27	39	48.00	-.68	-2.16	556.64	-529.86
48507.00	279.380	[illegible]	[illegible]	25708.78	13	28	27	48.00	-.96	-1.97	610.36	-459.13
48555.00	278.833	[illegible]	[illegible]	25391.85	13	29	15	48.00	-.72	-1.63	537.21	-396.16
48603.00	278.525	[illegible]	[illegible]	25063.88	13	30	3	48.00	-.34	-1.61	548.64	-409.97
48651.00	278.053	[illegible]	[illegible]	24723.73	13	30	51	48.00	-.57	-1.[illegible]	573.79	-425.19
48699.00	277.802	[illegible]	[illegible]	24380.98	13	31	39	48.00	-.33	-1.[illegible]	449.20	-428.43
48747.00	277.773	[illegible]	[illegible]	24043.34	13	32	27	48.00	-.04	-1.[illegible]	446.34	-422.05
48795.00	278.052	[illegible]	[illegible]	23725.49	13	33	15	48.00	.35	-1.26	460.63	-397.32
48843.00	278.444	[illegible]	[illegible]	23415.78	13	34	3	48.00	.49	-1.27	530.35	-387.14
48891.00	278.514	[illegible]	[illegible]	23111.89	13	34	51	48.00	.09	-1.29	598.93	-379.86
48939.00	278.542	[illegible]	[illegible]	22828.38	13	35	39	48.00	.04	-1.13	632.64	-354.39
48987.00	278.250	[illegible]	[illegible]	22536.08	13	36	27	48.00	-.36	-1.[illegible]	572.64	-365.37
49035.00	278.017	[illegible]	[illegible]	22263.10	13	37	15	48.00	-.29	-.98	466.34	-341.22
49083.00	277.798	[illegible]	[illegible]	22004.86	13	38	3	48.00	-.27	-1.04	621.79	-322.79
49131.00	277.299	[illegible]	[illegible]	21745.37	13	38	51	48.00	-.62	-1.04	629.79	-324.37
49179.00	276.839	[illegible]	[illegible]	21486.91	13	39	39	48.00	-.58	-.85	429.77	-323.07
49227.00	276.903	[illegible]	[illegible]	21216.61	13	40	27	48.00	-.05	-.90	491.49	-337.88
49275.00	276.750	[illegible]	[illegible]	20954.62	13	41	15	48.00	-.06	-.96	628.65	-327.49
49323.00	276.734	[illegible]	[illegible]	20681.25	13	42	3	48.00	-.09	-1.01	712.09	-341.72
49371.00	276.543	[illegible]	[illegible]	20429.59	13	42	51	48.00	-.24	-1.06	905.26	-314.58
49419.00	276.358	[illegible]	[illegible]	20224.79	13	43	39	48.00	-.23	-.89	827.53	-254.99
49467.00	276.017	[illegible]	[illegible]	20043.36	13	44	27	48.00	-.43	-.87	914.40	-226.79
49515.00	275.753	[illegible]	[illegible]	19813.83	13	45	15	48.00	-.33	-.81	715.52	-287.29
49563.00	275.731	[illegible]	[illegible]	19564.93	13	46	3	48.00	-.03	-.69	490.35	-310.76
49611.00	275.717	[illegible]	[illegible]	19305.49	13	46	51	48.00	-.02	-.73	574.93	-320.55

ROCK 3

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	47	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-291.04
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.11	-.64	661.80	-238.64
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-251.40

* * * T[illegible] * * *

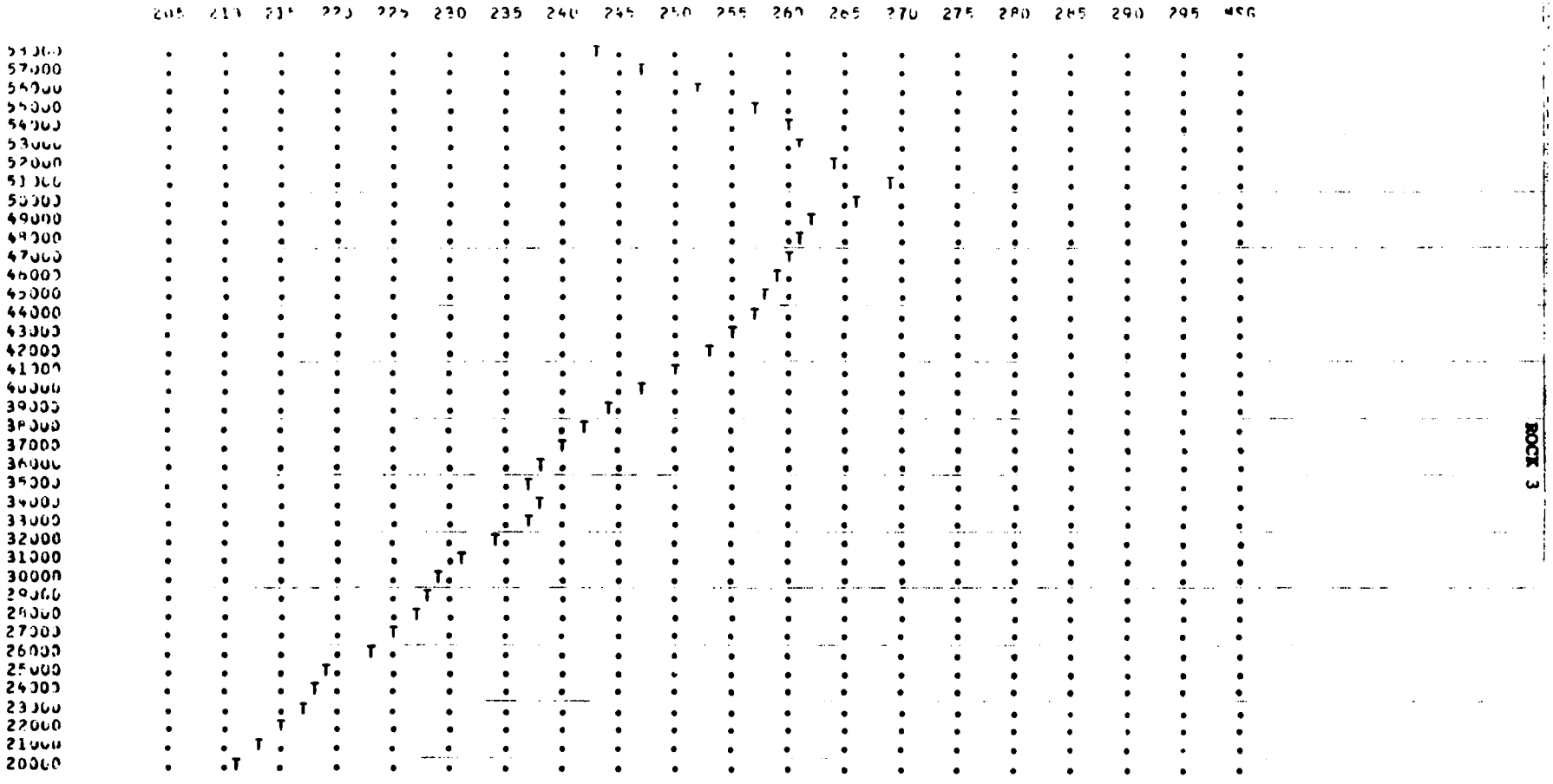
ROCKET SONDE [illegible] RAWINSONDE

TEST NUM [illegible]
ROCKET SONDE UNIT 044-110
CAPE CANAVERAL AFS, FL. CAPE CANAVERAL AFS, FLORIDA
1303Z 7 AUG 1984 1206Z 7 AUG 1984

ALTITUDE METERS	TEMPERATURE DEGREES C ROCKET	RAWINSONDE	DIFFERENCE
20000	-61.80	-51.70	-.1
21250	-61.33	-60.80	-.5
21500	-[illegible].65	-59.90	-.8
21750	-60.09	-59.10	-1.0
22000	-59.56	-58.60	-1.0
22250	-59.03	-57.70	-1.3
22500	-58.49	-57.00	-1.5
22750	-57.94	-56.50	-1.4
23000	-57.39	-56.70	-.7
23250	-56.85	-56.40	-.5
23500	-56.33	-55.60	-.7
23750	-55.82	-55.70	-.1
24000	-55.33	-55.30	-.0
24250	-54.85	-54.60	-.2
24500	-54.43	-53.90	-.5
24750	-54.23	-53.70	-.5
25000	-54.23	-54.10	-.1
25250	-54.36	-53.80	-.6
25500	-54.48	-53.20	-1.3
25750	-54.28	-53.10	-1.2
26000	-53.70	-52.80	-.9
26250	-52.70	-51.90	-.8
26500	-51.36	-50.80	-.6
26750	-50.22	-49.40	-.8
27000	-49.32	-47.80	-1.5
27250	-48.69	-47.70	-1.0
27500	-48.25	-47.80	-.5
27750	-47.84	-47.10	-.7
28000	-47.46	-46.50	-1.0
28250	-47.07	-46.60	-.5
28500	-46.65	-46.40	-.3
28750	-46.25	-46.00	-.3
29000	-45.83	-45.50	-.3
29250	-45.42	-45.00	-.4
29500	-45.02	-44.60	-.4
29750	-44.75	-44.20	-.6
30000	-44.54	-43.90	-.6
30250	-44.39	-43.70	-.7
30500	-44.26	-43.50	-.8
30750	-44.14	-43.30	-.8
31000	-44.01	-43.30	-.7

ROCK 3

TEST NUMBER 43-2
CAPE CANAVERAL AFS,FL.
13JUL 7 AUG 1994



ROCK 3

TEST NUMBER [illegible]
CAPE CANAVERAL [illegible]
13007 7 AUG 1964

SUPER LIGHT (SLV-1)

ALT GEOMM	DIR DEG	SPD MPS	TEMP K	TEMP CODE	PRESS MBS	DENSITY G/M3	RE MPS	VS MPS	SHR /SEC
20000	[illegible]	17	211.45	-.43	999.9999	999.9999	3.78	291.63	.999
21000	91	17	213.39	-.44	49.7595	81.1614	5.53	293.39	.002
22000	79	17	215.76	-.45	42.4979	68.6199	5.39	294.68	.003
23000	100	15	217.62	-.46	36.3541	58.1435	5.95	295.99	.005
24000	103	16	219.02	-.47	31.1395	49.5547	6.77	296.73	.001
25000	[illegible]	18	219.45	-.50	26.6804	42.3581	7.02	297.09	.006
26000	-4	22	223.83	-.52	22.9055	35.6512	7.97	300.04	.004
27000	93	23	225.89	-.54	19.7078	30.4213	9.76	301.73	.001
28000	84	23	227.32	-.56	16.9755	26.0163	8.88	302.37	.000
29000	87	23	228.64	-.56	14.6377	22.3039	9.93	303.24	.002
30000	90	25	229.14	-.60	12.6293	19.2017	11.34	303.57	.002
31000	93	25	231.05	-.67	10.9041	16.4412	12.40	304.86	.002
32000	90	26	234.76	-.68	9.4334	13.9991	12.87	307.28	.000
33000	88	25	237.16	-.69	8.1761	12.0104	13.32	308.84	.001
34000	89	25	238.57	-.72	7.0957	10.3618	15.53	309.76	.000
35000	92	26	237.40	-.78	6.1584	9.0373	17.36	309.00	.002
36000	93	27	238.15	-.83	5.3437	7.8169	17.27	309.49	.001
37000	94	28	240.80	-.88	4.6415	6.7152	16.66	311.20	.001
38000	97	30	242.14	-.88	4.0380	5.8098	19.17	312.07	.003
39000	98	35	244.56	-1.05	3.5155	5.0079	23.24	313.63	.004
40000	96	36	247.61	-1.18	3.0661	4.3139	26.81	315.57	.002
41000	96	35	250.47	-1.22	2.6784	3.7255	28.22	317.39	.006
42000	71	37	253.26	-1.26	2.3433	3.2234	26.33	319.16	.010
43000	74	42	255.76	-1.26	2.0532	2.7967	29.60	320.73	.010
44000	77	43	257.25	-1.34	1.9009	2.4389	29.56	321.66	.005
45000	78	46	258.68	-1.41	1.5809	2.1291	31.77	322.55	.003
46000	71	53	259.90	-1.56	1.3887	1.8615	35.39	323.31	.009
47000	79	55	260.97	-1.73	1.2206	1.6295	38.31	323.97	.008
48000	81	56	261.90	-1.91	1.0735	1.4279	43.46	324.56	.009
49000	98	53	262.83	-2.36	.9445	1.2519	47.74	325.13	.009
50000	109	41	266.96	-2.64	.8320	1.0857	51.91	327.68	.015
51000	129	35	269.91	-2.20	.7344	.9479	55.08	329.48	.015
52000	131	32	264.56	-2.27	.6478	.8530	57.48	326.20	.003
53000	134	40	261.93	-2.96	.5702	.7584	59.58	324.57	.017
54000	90	47	260.95	-3.10	.5016	.6696	63.70	323.96	.015
55000	92	53	257.25	-2.99	.4408	.5966	67.25	321.69	.009
56000	95	53	253.35	-3.45	.3865	.5335	71.09	318.58	.003
57000	94	49	247.62	-3.93	.3380	.4756	74.76	315.58	.009
58000	88	42	243.04	-4.53	.2949	.4227	79.20	312.68	.007
59000	49	46	999.99	0.00	999.9999	999.9999	85.58	999.99	.015
60000	48	44	999.99	0.00	999.9999	999.9999	94.29	999.99	.018
60034	47	44	999.99	0.00	999.9999	999.9999	94.56	999.99	.019

MAXIMUM ALTITUDE 60034 GEOMM

TEST NUMBER -3-2
CAPE CANAVERAL AFSFCL
13307 7 AUG 1964

SUPER LOKI DUP-110

ALT GEOMM	DIR DEG	SPD KTS	TEMP K	TEMP CDEG	PRESS MBS	DENSITY G/M3	PF MPS	VS MPS	SMP /DEC
20000	98	17	211.46	-.43	999.9999	999.9999	4.79	291.69	.999
20250	98	18	211.82	-.43	56.0702	92.2194	4.87	291.38	.003
20500	99	18	212.20	-.43	53.6761	88.3285	4.91	292.34	.004
20750	97	17	213.06	-.44	51.7742	84.6576	4.98	292.78	.007
21000	91	15	213.59	-.44	49.7595	81.1814	5.03	293.08	.006
21250	95	15	214.12	-.45	47.8280	77.8167	5.07	293.46	.005
21500	94	14	214.68	-.45	45.9762	74.6152	5.09	293.83	.004
21750	91	14	215.21	-.44	44.2005	71.5506	5.40	294.21	.004
22000	90	15	215.76	-.45	42.4979	68.6199	5.39	294.58	.002
22250	91	15	216.30	-.46	40.8650	65.8186	5.51	294.95	.003
22500	95	15	216.82	-.46	39.2985	63.1429	5.83	295.31	.006
22750	94	15	217.33	-.46	37.7961	60.5877	6.05	295.65	.008
23000	100	15	217.82	-.46	36.3541	58.1435	5.95	295.99	.007
23250	104	15	218.30	-.47	34.9704	55.8084	6.31	296.31	.004
23500	105	15	218.72	-.47	33.6424	53.5869	6.42	296.59	.003
23750	106	16	219.92	-.47	32.3665	51.5076	6.55	296.73	.001
24000	103	15	219.92	-.47	31.1395	49.5547	6.77	296.73	.003
24250	98	15	219.79	-.48	29.9590	47.7038	7.05	296.64	.005
24500	94	16	219.67	-.48	28.8226	45.9188	7.12	296.55	.005
24750	96	17	219.67	-.49	27.7298	44.1380	7.11	296.70	.007
25000	95	18	219.45	-.50	26.6804	42.3561	7.01	297.09	.006
25250	94	20	220.45	-.52	25.6735	40.5712	6.82	297.77	.005
25500	94	21	221.79	-.51	24.7106	38.8148	6.64	298.67	.005
25750	95	21	222.93	-.51	23.7892	37.1754	7.22	299.44	.003
26000	94	22	223.83	-.52	22.9055	35.6512	7.97	300.04	.002
26250	94	22	224.46	-.53	22.0574	34.2351	8.72	300.46	.002
26500	93	23	224.90	-.53	21.2434	32.9070	9.32	300.75	.001
26750	93	23	225.21	-.54	20.4600	31.6363	9.86	301.03	.001
27000	93	23	225.69	-.54	19.7078	30.4213	9.76	301.28	.001
27250	93	23	226.08	-.55	18.9838	29.2532	9.64	301.54	.000
27500	93	23	226.49	-.55	18.2862	28.1306	9.41	301.81	.001
27750	93	23	226.90	-.56	17.6190	27.0520	9.16	302.09	.001
28000	94	23	227.32	-.56	16.9755	26.0163	8.88	302.37	.000
28250	95	23	227.73	-.56	16.3569	25.0230	8.89	302.64	.001
28500	96	23	228.13	-.56	15.7614	24.0694	9.09	302.91	.002
28750	96	23	228.40	-.56	15.1881	23.1684	9.50	303.08	.002
29000	97	23	228.64	-.56	14.6377	22.3039	9.93	303.24	.002
29250	98	23	228.76	-.58	14.1071	21.4837	10.31	303.33	.002
29500	99	24	228.89	-.59	13.5958	20.6938	10.69	303.41	.002
29750	99	24	229.01	-.59	13.1037	19.9338	11.02	303.49	.002
30000	99	25	229.14	-.60	12.6293	19.2017	11.34	303.57	.002
30250	98	25	229.36	-.61	12.1729	18.4899	11.61	303.72	.001
30500	98	25	229.58	-.63	11.7330	17.8046	11.88	303.87	.001
30750	98	26	230.25	-.65	11.3107	17.1139	12.14	304.31	.002
31000	98	26	231.05	-.67	10.9041	16.4412	12.40	304.84	.002
31250	98	26	231.96	-.68	10.5137	15.7906	12.61	305.44	.001
31500	98	26	233.01	-.67	10.1394	15.1598	12.74	306.13	.000
31750	98	27	234.06	-.67	9.7784	14.5544	12.88	306.83	.000
32000	99	26	234.76	-.68	9.4334	13.9991	12.87	307.28	.001
32250	98	26	235.45	-.68	9.1006	13.4657	12.87	307.73	.001
32500	98	26	236.07	-.68	8.7805	12.9578	12.91	308.13	.001
32750	98	26	236.63	-.68	8.4726	12.4738	13.00	308.50	.002
33000	98	25	237.16	-.69	8.1761	12.0104	13.32	308.84	.002
33250	98	25	237.68	-.71	7.8907	11.5668	13.74	309.18	.001
33500	98	25	238.19	-.71	7.6158	11.1390	14.10	309.51	.001

A-93

ROCK 3

34000	[illegible]	[illegible]	[illegible]	-.77	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
34250	[illegible]	[illegible]	234.42	-.78	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
34500	84	34	234.09	-.76	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
34750	85	35	237.75	-.79	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
35000	86	26	237.41	-.79	6.1586	[illegible]	[illegible]	[illegible]	[illegible]
35250	87	26	237.33	-.79	5.9434	[illegible]	[illegible]	[illegible]	[illegible]
35500	88	26	237.27	-.81	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
35750	89	26	237.73	-.81	5.5383	6.1132	17.45	309.21	.001
36000	90	27	238.15	-.83	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
36250	91	27	238.63	-.84	5.1510	[illegible]	[illegible]	[illegible]	[illegible]
36500	92	27	239.15	-.86	4.9793	[illegible]	[illegible]	[illegible]	[illegible]
36750	94	27	239.63	-.88	4.8071	6.9837	16.74	310.56	.001
37000	94	28	240.50	-.88	4.6415	[illegible]	[illegible]	[illegible]	[illegible]
37250	95	28	241.66	-.88	4.4823	6.4617	17.16	311.76	.002
37500	97	28	242.41	-.86	4.3288	6.2202	17.61	312.27	.003
37750	97	29	242.24	-.86	4.1809	6.0029	18.38	312.13	.003
38000	97	30	242.14	-.88	4.0380	5.8098	19.17	312.07	.004
38250	97	31	242.35	-.94	3.9001	5.6063	20.07	312.21	.005
38500	98	33	242.81	-.98	3.7671	5.4049	21.04	312.50	.005
38750	98	34	243.70	-1.01	3.6390	5.2021	22.14	313.07	.004
39000	98	35	244.56	-1.05	3.5155	5.0079	23.24	313.63	.004
39250	98	35	245.35	-1.08	3.3969	4.8233	24.32	314.13	.002
39500	98	36	246.15	-1.12	3.2823	4.6455	25.41	314.64	.002
39750	97	36	246.88	-1.15	3.1723	4.4766	26.12	315.11	.003
40000	96	36	247.61	-1.18	3.0661	4.3139	26.81	315.57	.003
40250	94	36	248.33	-1.20	2.9637	4.1577	27.36	316.03	.005
40500	92	36	249.05	-1.20	2.8652	4.0060	27.73	316.49	.007
40750	89	35	249.77	-1.21	2.7700	3.8636	28.10	316.95	.007
41000	86	35	250.47	-1.22	2.6784	3.7255	28.22	317.39	.007
41250	83	35	251.17	-1.23	2.5901	3.5926	28.27	317.83	.007
41500	80	35	251.86	-1.24	2.5047	3.4645	28.31	318.27	.007
41750	76	35	252.58	-1.24	2.4226	3.3415	28.28	318.72	.010
42000	71	37	253.26	-1.26	2.3433	3.2234	28.33	319.16	.014
42250	67	40	253.93	-1.29	2.2668	3.1099	28.84	319.58	.013
42500	72	41	254.61	-1.30	2.1931	3.0007	29.40	320.01	.01[illegible]
42750	78	41	255.26	-1.28	2.1219	2.8960	29.59	320.41	.018
43000	84	42	255.76	-1.26	2.0532	2.7967	29.00	320.73	.017
43250	88	43	256.13	-1.28	1.9869	2.7025	29.09	320.96	.011
43500	86	44	256.53	-1.27	1.9227	2.6112	28.74	321.21	.005
43750	81	43	256.92	-1.28	1.8608	2.5232	29.14	321.45	.015
44000	75	43	257.25	-1.34	1.8009	2.4389	29.56	321.66	.010
44250	77	44	257.63	-1.34	1.7431	2.3571	29.81	321.90	.003
44500	78	45	258.00	-1.35	1.6872	2.2782	30.26	322.13	.003
44750	79	45	258.34	-1.38	1.6331	2.2023	31.49	322.34	.004
45000	78	46	258.68	-1.41	1.5809	2.1291	31.77	322.55	.004
45250	77	47	259.00	-1.45	1.5304	2.0585	32.22	322.75	.005
45500	76	49	259.32	-1.47	1.4816	1.9904	33.13	322.95	.007
45750	73	51	259.63	-1.50	1.4344	1.9247	34.29	323.14	.013
46000	71	53	259.90	-1.56	1.3887	1.8615	35.39	323.31	.012
46250	71	54	260.16	-1.61	1.3446	1.8005	36.27	323.48	.005
46500	72	55	260.46	-1.63	1.3019	1.7413	36.85	323.66	.006
46750	74	55	260.74	-1.65	1.2606	1.6842	37.57	323.84	.012
47000	79	55	260.97	-1.73	1.2206	1.6295	38.31	323.97	.015
47250	82	55	261.20	-1.78	1.1820	1.5765	39.90	324.12	.012
47500	84	55	261.44	-1.83	1.1446	1.5253	41.37	324.27	.009
47750	86	55	261.70	-1.85	1.1084	1.4756	41.85	324.43	.007
48000	88	55	261.96	-1.91	1.0735	1.4279	43.44	324.58	.007
48250	90	56	262.06	-2.01	1.0396	1.3820	44.36	324.65	.006
48500	92	56	262.27	-2.05	1.0068	1.3374	45.51	324.78	.008
48750	95	55	262.43	-2.14	.9751	1.2945	46.44	324.88	.010
49000	98	53	262.83	-2.36	.9445	1.2519	47.74	325.13	.014
49250	100	50	263.68	-2.52	.9148	1.2087	49.06	325.66	.016
49500	102	46	264.78	-2.58	.8862	1.1660	49.95	326.33	.015
49750	104	43	265.91	-2.59	.8586	1.1250	50.63	327.02	.014
50000	[illegible]	41	266.98	-2.64	.8320	1.0857	51.91	327.[illegible]	.01[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	-2.74	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
61500	136	37	265.11	-2.64	.7312	.9117	[illegible]	[illegible]	[illegible]
61750	134	36	259.[illegible]	-2.48	.7576	.9250	54.[illegible]	323.48	.015
62000	132	35	260.31	-2.30	.7344	.9479	[illegible]	324.48	.013
62250	130	34	265.[illegible]4	-2.17	.7149	.9265	[illegible]	324.93	.010
62500	128	33	267.[illegible]	-2.05	.[illegible]99	.[illegible]99	[illegible].91	327.09	.008
62750	126	33	266.02	-2.13	.6886	.8756	56.62	327.09	.004
63000	124	32	264.56	-2.27	.6674	.8530	57.48	326.20	.008
63250	122	33	263.39	-2.49	.6279	.8301	57.48	325.47	.016
63500	118	33	262.[illegible]	-2.[illegible]	.[illegible]37	.[illegible]061	[illegible].37	325.04	.017
63750	118	34	262.22	-2.[illegible]	.5887	.7822	59.22	324.75	.017
64000	116	45	261.93	-2.96	.5762	.7594	59.58	324.57	.017
64250	103	42	261.59	-3.03	.5522	.7352	60.83	324.42	.015
64500	99	44	261.48	-3.08	.5346	.7126	61.99	324.29	.015
64750	94	45	261.28	-3.11	.5179	.6906	63.03	324.17	.015
65000	90	47	260.95	-3.10	.5016	.6696	63.79	323.96	.015
65250	87	48	260.41	-3.[illegible]	.4857	.6498	64.46	323.63	.013
65500	84	50	259.66	-2.94	.4703	.6310	65.31	323.16	.011
65750	83	51	258.51	-2.94	.4553	.6136	66.27	322.45	.008
66000	82	53	257.29	-2.99	.4408	.5966	67.25	321.69	.006
66250	82	54	256.01	-3.13	.4266	.5805	68.23	320.88	.004
66500	82	54	254.50	-3.21	.4129	.5645	69.06	320.12	.002
66750	83	54	253.61	-3.28	.3995	.5488	69.85	319.38	.003
67000	85	53	252.35	-3.45	.3866	.5335	71.09	318.58	.008
67250	87	52	251.13	-3.58	.3738	.5186	72.23	317.81	.009
67500	90	51	249.99	-3.66	.3615	.5038	73.20	317.09	.011
67750	92	50	248.81	-3.78	.3496	.4895	74.03	316.34	.009
68000	94	49	247.62	-3.93	.3380	.4756	74.76	315.58	.008
68250	94	47	246.47	-4.05	.3267	.4618	76.09	314.85	.007
68500	93	45	245.33	-4.17	.3158	.4485	77.53	314.12	.007
68750	91	44	244.18	-4.33	.3052	.4354	78.30	313.38	.009
69000	88	42	243.04	-4.53	.2949	.4227	79.20	312.65	.010
69250	84	41	241.97	-4.93	.2849	.4101	80.96	311.95	.014
69500	79	41	999.99	0.00	999.9999	999.9999	82.65	999.99	.014
69750	73	43	999.99	0.00	999.9999	999.9999	84.03	999.99	.018
70000	69	45	999.99	0.00	999.9999	999.9999	85.58	999.99	.017
70250	67	50	999.99	0.00	999.9999	999.9999	87.89	999.99	.018
70500	65	54	999.99	0.00	999.9999	999.9999	90.17	999.99	.018
70750	67	59	999.99	0.00	999.9999	999.9999	92.23	999.99	.019
71000	68	64	999.99	0.00	999.9999	999.9999	94.29	999.99	.019
71034	68	64	999.99	0.00	999.9999	999.9999	94.56	999.99	.019

MAXIMUM ALTITUDE 71034 GEOMM

TEST NUMBER 53 2
CAPE CANAVERAL AFSTA.
1330Z 7 AUG 1964

SUPER LOKI RWN-1+0

ALT (FEET)	DIA (FT)	SPD (KTS)	TEMP (K)	TEMP CORR	PRESS (MBS)	DENSITY (G/M3)	RF (FPS)	VS (KTS)	SHR (/SEC)
66000	38	34	211.46	-.43	57.2777	94.3655	12.40	564.51	.006
67000	39	35	212.30	-.43	54.5538	89.4234	15.32	567.63	.004
68000	39	33	213.01	-.44	51.9666	84.9959	18.17	568.58	.006
69000	34	30	213.65	-.44	49.5135	80.7754	18.06	569.44	.006
70000	37	28	214.31	-.45	47.1813	76.6982	18.44	570.31	.004
71000	42	27	214.97	-.44	44.9662	72.8719	17.67	571.19	.004
72000	39	25	215.64	-.45	42.8619	69.2454	17.71	572.09	.004
73000	41	29	216.30	-.46	40.8622	65.9139	18.09	572.96	.002
74000	38	30	216.94	-.46	38.9614	62.5685	19.39	573.80	.006
75000	37	30	217.55	-.46	37.1542	59.4987	19.61	574.61	.008
76000	103	30	218.14	-.47	35.4357	56.5930	20.30	575.39	.005
77000	104	30	218.67	-.47	33.8009	53.8516	21.04	576.08	.003
78000	105	30	219.93	-.47	32.2444	51.3107	21.53	576.43	.001
79000	101	31	218.89	-.47	30.7604	48.9605	22.53	576.36	.004
80000	96	31	218.73	-.48	29.3442	46.7382	23.25	576.16	.005
81000	90	33	218.80	-.49	27.9932	44.5712	23.36	576.26	.006
82000	85	35	219.42	-.50	26.7065	42.4023	23.00	577.09	.007
83000	84	34	220.71	-.51	25.4840	40.2246	22.25	578.77	.005
84000	84	41	222.29	-.51	24.3250	38.1229	22.20	580.84	.004
85000	85	42	223.60	-.51	23.2256	36.1867	25.26	582.54	.002
86000	44	43	224.36	-.53	22.1814	34.4419	28.24	583.54	.002
87000	83	44	224.93	-.53	21.1871	32.8155	30.70	584.27	.001
88000	83	44	225.42	-.54	20.2391	31.2792	32.24	584.91	.001
89000	83	45	225.89	-.55	19.3357	29.8209	31.87	585.52	.001
90000	83	44	226.36	-.55	18.4747	28.4314	31.09	586.15	.001
91000	83	44	226.88	-.55	17.6535	27.1076	30.11	586.80	.001
92000	84	44	227.39	-.56	16.8706	25.8476	28.96	587.46	.000
93000	85	44	227.88	-.56	16.1245	24.6507	29.42	588.10	.002
94000	86	44	228.30	-.56	15.4125	23.5195	30.60	588.63	.002
95000	87	45	228.60	-.56	14.7330	22.4525	32.33	589.03	.002
96000	88	45	228.77	-.58	14.0845	21.4488	33.90	589.24	.002
97000	89	45	228.92	-.59	13.4648	20.4914	35.37	589.43	.002
98000	90	47	229.07	-.59	12.8729	19.5776	36.66	589.63	.002
99000	90	48	229.29	-.61	12.3076	18.6999	37.83	589.91	.002
100000	90	49	229.56	-.63	11.7675	17.8583	38.91	590.26	.001
101000	90	50	230.36	-.65	11.2531	17.0184	39.96	591.29	.002
102000	90	51	231.34	-.67	10.7619	16.2065	40.99	592.54	.002
103000	90	51	232.57	-.67	10.2958	15.4229	41.62	594.11	.001
104000	90	51	233.85	-.67	9.8506	14.6753	42.16	595.74	.000
105000	90	51	234.77	-.68	9.4279	13.9902	42.24	596.92	.000
106000	90	51	235.61	-.68	9.0240	13.3431	42.21	597.99	.001
107000	89	50	236.32	-.68	8.6391	12.7354	42.48	598.89	.001
108000	88	50	236.99	-.69	8.2715	12.1592	43.22	599.74	.002
109000	87	49	237.62	-.71	7.9207	11.6126	44.98	600.53	.002
110000	88	49	238.23	-.71	7.5856	11.0931	46.52	601.30	.001
111000	88	50	238.63	-.70	7.2654	10.6066	49.24	601.81	.002
112000	89	51	238.50	-.73	6.9589	10.1446	52.39	601.65	.002
113000	90	51	238.16	-.74	6.6651	9.7495	54.74	601.22	.002
114000	92	51	237.75	-.75	6.3833	9.3535	56.27	600.70	.002
115000	92	51	237.36	-.78	6.1131	8.9723	57.06	600.20	.001
116000	92	51	237.31	-.80	5.8540	8.5940	57.24	600.14	.000
117000	93	51	237.60	-.81	5.6061	8.2199	57.32	600.51	.001
118000	93	51	238.09	-.82	5.3691	7.8562	56.83	601.12	.001
119000	94	53	238.68	-.84	5.1425	7.5062	55.27	601.96	.002
120000	95	53	239.21	-.85	4.9262	7.1715	54.92	602.64	.001

ROCK 3

121000	[illegible]	4	240.32	-.77	4.7167	[illegible]	[illegible]	[illegible]	[illegible]
122000	[illegible]	4	241.45	-.[illegible]	4.[illegible]	5.3254	[illegible]	[illegible]	.002
123000	97	[illegible]	242.43	-.[illegible]	4.334	5.2480	77.72	[illegible]	.[illegible]
124000	97	57	243.23	-.[illegible]	4.1[illegible]	5.9760	[illegible].74	606.29	.003
125000	97	[illegible]	243.22	-.[illegible]	3.9827	[illegible].7275	54.05	606.32	.004
126000	96	63	243.49	-.97	[illegible].[illegible]70	5.6[illegible]	67.88	[illegible].[illegible]	.[illegible]
127000	98	65	243.58	-1.01	3.6593	5.2343	72.06	607.68	.004
128000	98	67	244.61	-1.05	3.5015	4.9970	76.44	608.30	.004
129000	98	6[illegible]	245.57	-1.09	3.3647	4.7733	80.79	610.50	.002
130000	98	70	246.51	-1.13	3.2272	4.5606	84.87	611.66	.00[illegible]
131000	98	70	247.40	-1.17	3.0959	4.3596	87.31	612.76	.003
132000	96	71	247.28	-1.20	2.9702	4.1677	89.70	613.84	.004
133000	91	69	249.16	-1.21	2.8503	3.9854	91.16	614.94	.007
134000	92	69	250.03	-1.21	2.7354	3.8143	92.50	616.01	.007
135000	94	68	250.88	-1.23	2.6256	3.6462	92.64	617.06	.007
136000	91	67	251.73	-1.24	2.5206	3.4883	92.85	618.11	.007
137000	76	69	252.50	-1.24	2.4201	3.3376	92.78	619.17	.010
138000	59	73	253.42	-1.27	2.3239	3.1947	93.09	620.18	.016
139000	70	78	254.25	-1.29	2.2319	3.0582	95.53	621.19	.008
140000	77	80	255.07	-1.29	2.1438	2.9281	97.09	622.19	.016
141000	86	84	255.73	-1.25	2.0595	2.8056	95.10	623.00	.018
142000	85	84	256.16	-1.28	1.9786	2.6907	95.49	623.54	.011
143000	82	85	256.67	-1.27	1.9011	2.5804	94.39	624.14	.009
144000	75	84	257.12	-1.30	1.8267	2.4751	96.72	624.68	.013
145000	77	85	257.55	-1.34	1.7554	2.3744	97.32	625.21	.005
146000	78	87	258.00	-1.35	1.6870	2.2779	99.27	625.76	.003
147000	76	89	258.42	-1.39	1.6213	2.1858	103.88	626.26	.003
148000	77	90	258.82	-1.42	1.5584	2.0976	103.09	626.75	.004
149000	76	94	259.21	-1.46	1.4979	2.0132	107.83	627.22	.006
150000	74	98	259.59	-1.50	1.4399	1.9324	112.06	627.68	.011
151000	71	103	259.92	-1.56	1.3842	1.8553	116.44	628.09	.012
152000	74	106	260.26	-1.62	1.3308	1.7814	119.79	628.49	.004
153000	74	107	260.61	-1.64	1.2795	1.7104	122.05	628.92	.009
154000	78	106	260.92	-1.71	1.2302	1.6426	125.11	629.28	.014
155000	82	107	261.20	-1.76	1.1829	1.5777	130.77	629.62	.013
156000	85	107	261.49	-1.83	1.1374	1.5154	136.01	629.97	.009
157000	87	108	261.78	-1.87	1.0938	1.4556	139.51	630.32	.007
158000	90	108	262.00	-1.97	1.0519	1.3986	144.45	630.59	.008
159000	92	109	262.24	-2.05	1.0116	1.3439	148.75	630.87	.008
160000	95	107	262.44	-2.15	.9729	1.2915	152.59	631.11	.010
161000	98	101	262.97	-2.43	.9357	1.2396	157.99	631.76	.014
162000	101	93	264.22	-2.57	.9001	1.1868	163.08	633.26	.016
163000	103	85	265.61	-2.58	.8660	1.1358	164.94	634.92	.013
164000	107	79	266.93	-2.64	.8333	1.0876	170.19	636.49	.015
165000	114	74	268.15	-2.76	.8021	1.0421	172.43	637.94	.017
166000	121	71	269.56	-2.65	.7721	.9979	177.79	639.62	.016
167000	128	69	270.05	-2.29	.7434	.9590	180.09	640.20	.014
168000	133	67	269.03	-2.09	.7157	.9269	181.92	638.98	.011
169000	135	65	267.42	-2.05	.6889	.8975	183.50	637.07	.006
170000	134	63	265.62	-2.16	.6630	.8696	186.65	634.93	.004
171000	128	63	263.99	-2.38	.6379	.8418	188.58	632.97	.011
172000	120	67	262.85	-2.63	.6136	.8133	190.40	631.61	.017
173000	113	73	262.25	-2.84	.5902	.7840	194.19	630.88	.017
174000	107	79	261.90	-2.98	.5676	.7551	195.94	630.46	.016
175000	102	83	261.61	-3.05	.5459	.7270	201.09	630.12	.015
176000	96	87	261.36	-3.10	.5250	.6998	205.37	629.92	.015
177000	91	90	261.01	-3.10	.5048	.5738	208.54	629.40	.015
178000	87	94	260.40	-3.04	.4854	.6494	211.52	628.66	.013
179000	84	98	259.41	-2.94	.4667	.6268	214.99	627.44	.011
180000	82	101	257.97	-2.95	.4486	.6059	218.89	625.72	.007
181000	82	103	256.43	-3.09	.4312	.5858	222.81	623.85	.005
182000	82	105	254.93	-3.21	.4143	.5662	226.30	622.01	.003
183000	83	105	253.47	-3.30	.3980	.5470	229.64	620.23	.003
184000	85	103	251.93	-3.50	.3822	.5285	234.59	618.35	.008
185000	88	100	250.50	-3.62	.3670	.5104	238.74	616.59	.010
186000	91	97	249.09	-3.74	.3523	.4927	242.32	614.85	.010

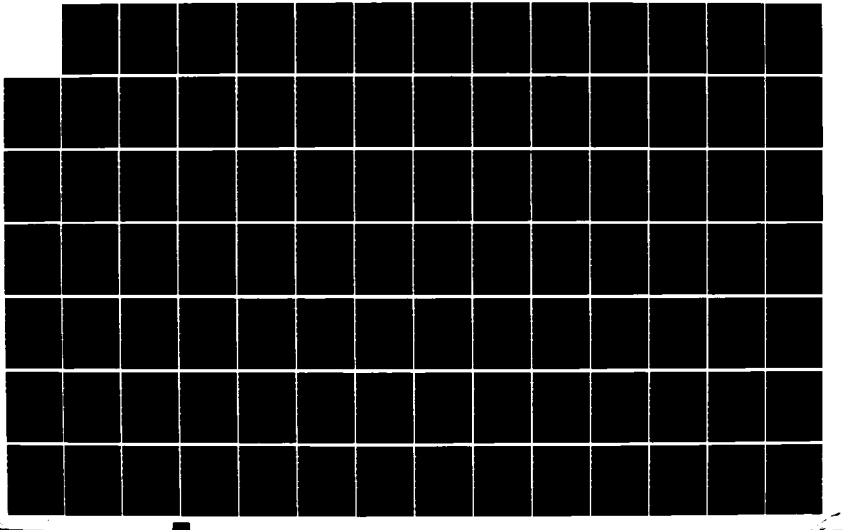
ROCK 3

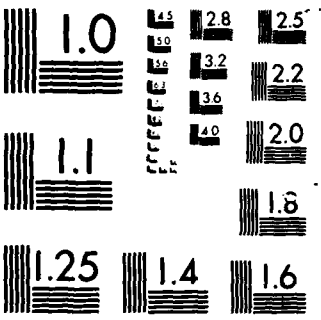
MAXIMUM ALTITUDE (FEET) GEOMET

1	50	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
2	49	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
3	48	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
4	47	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
5	46	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
6	45	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
7	44	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
8	43	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
9	42	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
10	41	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
11	40	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
12	39	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
13	38	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
14	37	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
15	36	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
16	35	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
17	34	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
18	33	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
19	32	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
20	31	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
21	30	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
22	29	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
23	28	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
24	27	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016
25	26	999.00	-4.34	.2771	999.9999	999.9999	316.24	999.99	.016

```
[illegible]
[illegible]
[illegible]
91357 07567 06323 01404 [illegible] 03033 91260 29745 [illegible] 91223
30544 09325 91192 [illegible] 09026 91104 32503 09026 91140 33534
09026 91120 34535 09026 91104 35535 09026 92504 36535 09027
32782 37522 [illegible] [illegible] [illegible] [illegible] 32504 39529 10035 02501
40525 10035 02431 41523 09035 32373 42520 07037 92322 43517
05042 92[illegible] 44513 [illegible] 02244 44514 36046 92218 46513 07053
32104 47512 08055 32163 44511 09055 92143 49520 10053 92125
26506 11[illegible] 92139 51503 13035 93548 52509 13032 93853 53511
11040 93758 54512 09047 93670 55516 06053 93597 56521 09053
93546 57526 09043 93478 [illegible] 04042 93423 59777 07046 97777
59777 07044 97777
11500 59201 09016 11514 20241 10016 11548 20267 06023 11540
10313 09026 11535 07336 09026 11534 05362 09027 11525 03398
10036 11517 02426 09043 11511 01481 09056 22505 07509 13034
22512 05534 09047 22519 04561 08054 22530 03572 09043
JJJ
```

AD-A163 634 IRIG STANDARDS FOR RANGE METEOROLOGICAL DATA REDUCTION 2/5
PART 2 ROCKETSONDE(U) RANGE COMMANDERS COUNCIL WHITE
SANDS MISSILE RANGE NM INTER-R.. DEC 85
UNCLASSIFIED IRIG-STANDARD-352-85-[illegible] F/G 4/1 NL





ATTACHMENT 8

BREAKDOWN OF 46-CHARACTER DATA

DATA FORMAT

COMPUTER OCTAL SEMI-RAW TTY OUTPUT

(38/46 CHARACTER)

SOM Line: JJ ↓ <≡↓ or DD ↓ <≡↓

Char. No.	Char. or Range	Content
1		Line Feed
2	↑	Figure Shift
3	↑	Figure Shift
4	(0–9)	Vehicle ID
5	(0–9)	Station ID
6	(0–9)	Station ID
7	(0–9)	Radar ID
8	(0 or 2)	Validity ID
9	(0–2)	Hrs (tens)
10	(0–9)	Hrs (units)
11	(0–5)	Min (tens)
12	(0–9)	Min (units)
13	(0–5)	Sec (tens)
14	(0–9)	Sec (units)
15	(0–7)	Az 21, 20, 19
16	(0–7)	Az 18, 17, 16
17	(0–7)	Az 15, 14, 13
18	(0–7)	Az 12, 11, 10
19	(0–7)	Az 9, 8, 7
20	(0–7)	Az 6, 5, 4
21	(0–7)	Az 3, 2, 1
22	(0–7)	El 21, 20, 19
23	(0–7)	El 18, 17, 16
24	(0–7)	El 15, 14, 13
25	(0–7)	El 12, 11, 10
26	(0–7)	El 9, 8, 7
27	(0–7)	El 6, 5, 4
28	(0–7)	El 3, 2, 1
29	(0–7)	Rng 27, 26, 25
30	(0–7)	Rng 24, 23, 22
31	(0–7)	Rng 21, 20, 19
32	(0–7)	Rng 18, 17, 16
33	(0–7)	Rng 15, 14, 13
34	(0–7)	Rng 12, 11, 10
35	(0–7)	Rng 9, 8, 7
36	(0–7)	Rng 6, 5, 4
37	(0–7)	Rng 3, 2, 1
38	<	Carriage return for end of 38 character data
38	(0–3)	46 char data day of year (100)
39	(0–3)	46 char data day of year (10)
40	(0–9)	46 char data day of year (1)
41	(0–9)	46 char data catalog number (1000)
42	(0–9)	46 char data catalog number (100)
43	(0–9)	46 char data catalog number (10)
44	(0–9)	46 char data catalog number (1)
45	(0–9)	SPACE
46	<	Carriage return for end of 46 character data

Description

Vehicle ID

Beacon	Skin
0	&
1	-
2	
3	
4	
5	$
6	
7	)
8	Test Data
9	Last Point

Station ID		Radar ID	No. Char.
01	BDA 67.18	4	TPQ-18	46
02	BDA 67.16	5	FPS-16M	46
08	CRO --	3	FPQ-6	46
12	HAW --	5	FPS-16M	38/46
21	PAT 0.18	3	FPQ-6	38/46
41	GBI 3.13	-	FPQ-13	None
51	GTK 7.18	4	TPQ-18	38/46
63	REDSTONE	5	FPS-16M	38
71	MLA 19.18	4	TPQ-18	38/46
75	ACN 12.16	0	FPS-16	38/46
91	ANT 91.18	3	FPQ-6	38/46
98	CNV 1.16	-	FPS-16	None

EOM Line: ≡ * / +

ATTACHMENT 9

DESCRIPTION OF TEMPERATURE CORRECTION TECHNIQUE

(This attachment was extracted from *Federal Meteorological Handbook* 10)

Description of corrections applied to observed Rocketsonde Temperature

Temperature Corrections for Datasonde Instrument

The Datasonde instrument employes a 10-mil bead thermistor, mounted on a loop of silverized mylar, commonly referred to as the loop mount. The general procedures for applying temperature corrections to film mounted thermistors, as described by Henry (Bibliography Ref. 3) have been expanded and adapted to the specific configuration of the loop mounted thermistor as used in the Datasonde instrument. This work has been done by Krumins and Lyons (Bibliography Ref. 4), and others, and has been adopted as the U.S. standard correction technique. The corrections developed for application to the loop mounted thermistor include acceptable values for incoming radiation heating corrections.

The true atmospheric temperature, T_{atm}, is equal to the observed thermistor temperature, T_t, plus certain correction values described by the following terms: (some rearrangement of the elements of each term has been made from the similar terms used for the Arcasonde instrument and the elements for the incoming radiation corrections have been added to the fourth term.):

Aerodynamic heating term,

$$K_1 = - \left[\frac{A_t h_t r_t + w_f A_f h_f r_f}{A_t h_t + w_f A_f h_f} \right] \frac{V^2}{2c_p}$$

Time lag term,

$$K_2 = + \left[\frac{c_t m_t + w_f c_f m_f}{A_t h_t + w_f A_f h_f} \right] \frac{dT_t}{d_t}$$

Radiation heat loss, term,

$$K_3 = + \left[\frac{A_t \varepsilon_{1t} + w_f A_f \varepsilon_{1f}}{A_t h_t + w_f A_f h_f} \right] \sigma T_t^4$$

Incoming radiation and electric heating term,

$$K_4 = - \frac{\alpha_{st} G_{st}}{A_t h_t + w_f A_f h_f} J$$

$$- \frac{w_f \alpha_{sf} G_{sf}}{A_t h_t + w_f A_f h_f} J - \left[\frac{\alpha_{st} G_{st}}{A_t h_t + w_f A_f h_f} + \frac{w_f \alpha_{sf} G_{sf}}{A_t h_t + w_f A_f h_f} \right] \text{Alb. } J$$

$$- \left[\frac{\alpha_{1t} G_{1t} + w_f \alpha_{1f} G_{1f}}{A_t h_t + w_f A_f h_f} \right] \sigma T_{eff}^4 - \frac{W_t}{A_t h_t + w_f A_f h_f}$$

The four correction terms applied to the observed thermistor temperature can be simply identified in a correction expression as follows:

$$T_{atm} = T_t - (K_1(Z)V^2) + \left[K_2(Z)\left(\frac{dT_t}{d_t}\right)\right] + (K_3(Z)T_t^4) - (K_4(Z))$$

The values of $K_1(Z)$, $K_2(Z)$, $K_3(Z)$ and $K_4(Z)$ are shown in table 1.b. and the values of T_t, V^2, $\frac{dT_t}{dt}$ and T_t^4 versus altitude, (Z), are obtained from each individual sounding.

List of Symbols and Values

The following symbols have been used in the foregoing expressions. The values of some of the constants and also several of the mount/thermistor dimensions which have been used in the computation of data for tables 1.a and 1.b are shown. Where the values differ for the flat plate and the loop mounted thermistor, the system for which the value is applicable is indicated by the letters F and L, respectively.

Symbol	Definition	Value
a	speed of sound	
A	aerodynamic heating term	
A_f	surface area of film	3.944 cm^2
A_t	surface area of thermistor	2.92×10^{-3} cm^2
Alb.	albedo	35 percent assumed
B	time lag term	
c_f	specific heat of film	0.2 cal gm^{-1} $(°K)^{-1}$
c_p	specific heat of air at constant pressure	0.24 cal gm^{-1} $(°K)^{-1}$
C	*ohmic and rf heating term*	
d	diameter of bead	2.54×10^{-2} cm
D	long wave emission term	
G_{lf}	area of film multiplied by a shape factor subject to long-wave (terrestrial) radiation	3.944 x 0.5 cm^2
G_{lt}	area of thermistor multiplied by a shape factor subject to long-wave (terrestrial) radiation	2.923×10^{-3} x 0.5 cm^2
G_{sf}	*area of film multiplied by a shape factor* supplied to short-wave (solar) radiation	3.944 x *0.25* cm^2
G_{st}	area of thermistor multiplied by a shape factor subject to short-wave (solar) radiation	5.09×10^{-4} x 0.25 cm^2
h_f	convective heat-transfer coefficient for film	See Bibl. 4
h_t	convective heat-transfer coefficient for thermistor	See Bibl. 4
(h_f)local	local convective heat-transfer coefficient for film	See Bibl. 4

Symbol	Definition	Value
J	solar constant	
k	conductivity of lead wires	7.4×10^{-2} cal cm^{-1} sec^{-1} $(°K)^{-1}$
K_1	dynamic heating correction term	
K_2	lag correction term	
K_3	radiation loss correction term	
K_4	radiation and electrical heating correction term	
M	Mach number	
m_f	mass of film	1.4×10^{-2} gm
V	ventilation velocity of sensor system, m sec^{-1}	
w_f	weighting factor	See Bibl. 4
W_t	electrical heating of thermistor due to measuring current and radio-frequency radiation	9.56×10^{-7} cal sec^{-1}
x	length of lead wires	0.33 cm
Z	altitude meters	
α	absorptivity	
α_{lf}	absorptivity of long-wave (terrestrial) radiation of film	0.1
α_{lt}	absorptivity of long-wave (terrestrial) radiation of thermistor	0.1
α_{sf}	absorptivity of short-wave (solar) radiation of film	0.18
α_{st}	absorptivity of short-wave (solar) radiation of thermistor	0.12
β	cross sectional area of lead wires	5.07×10^{-6} cm^2
ε_{lf}	emissivity of film	0.18
ε_{lt}	emissivity of thermistor	0.2
γ	angle of elevation of sun from horizontal	See Bibl. 4
μ	viscosity	

Symbol	Definition	Value
ϱ	density	
ϱ_f	density of film	
σ	Stefan-Boltzman constant	1.38×10^{-12} cal cm^{-2} sec^{-1} $(°K)^{-4}$
m_t	mass of thermistor	See Bibl. 4
N_s	Nusselt number	See Bibl. 4
P_r	Prandlt number	See Bibl. 4
r_f	recovery factor for film	0.85
r_t	recovery factor for thermistor	See Bibl. 4
R_d	Reynolds number based on diameter	See Bibl. 4
R_l	Reynolds number based on length	See Bibl. 4
R_s	Reynolds number based on length along the film	See Bibl. 4
s	distance along the film from stagnation point	See Bibl. 4
S_t	Stanton number	See Bibl. 4
T_{eff}	effective radiation temperature of atmosphere	See Bibl. 4
T_f	temperature of film	
T_t	temperature of thermistor, degrees K	
T_{atm}	temperature of atmosphere corrected, degrees K	
t	time, seconds	
t_f	thickness of film	
u	local velocity	

ROCK 3

TABLE 1

Table of values of K_1, K_2, K_3, and K_4 versus altitude for the 10-mil bean thermistor using a loop mount.

Z	K_1	K_2	K_3	K_4	
	$\frac{sec^2 °K}{m^2}$		$\frac{1}{°K^3}$	(°K)	
(m)		(sec)		Day	Night
70×10^3	4.65×10^{-4}	12.77	18.51×10^{-10}	23.2	7.56
69	4.65	10.60	14.63	18.4	6.04
68	4.64	8.92	11.83	15.0	4.93
67	4.64	7.70	9.80	12.5	4.13
66	4.63	6.69	8.18	10.4	3.48
65	4.62	5.93	6.98	8.94	3.00
64	4.61	5.27	5.98	7.70	2.59
63	4.59	4.72	5.17	6.69	2.26
62	4.57	4.27	4.63	5.87	2.00
61	4.55	3.84	3.93	5.13	1.75
60	4.52	3.51	3.49	4.57	1.57
59	4.50	3.23	3.12	4.10	1.41
58	4.48	2.95	2.78	3.66	1.27
57	4.46	2.72	2.49	3.29	1.15
56	4.44	2.51	2.24	2.98	1.04
55	4.43	2.342	2.05	2.73	0.956
54	4.42	2.148	1.87	2.51	0.880
53	4.41	2.053	1.74	2.33	0.820
52	4.40	1.935	1.62	2.17	0.766
51	4.40	1.828	1.51	2.03	0.718
50	4.39	1.728	1.41	1.90	0.673
49	4.39	1.627	1.31	1.77	0.629
48	4.39	1.545	1.23	1.67	0.592
47	4.39	1.469	1.16	1.57	0.559
46	4.40	1.393	1.09	1.48	0.528
45	4.41	1.330	1.03	1.40	0.500
44	4.41	1.271	9.76×10^{-11}	1.33	0.476
43	4.42	1.212	9.24	1.26	0.452
42	4.42	1.160	8.79	1.20	0.430
41	4.43	1.111	8.35	1.14	0.410
40	4.43	1.065	7.95	1.09	0.392
39	4.44	1.019	7.53	1.03	0.372
38	4.44	0.978	7.18	0.986	0.355
37	4.45	0.940	6.85	0.943	0.341
36	4.45	0.903	6.52	0.897	0.323
35×10^3	4.46×10^{-4}	0.868	6.22×10^{-11}	0.858	0.311
34	4.46	0.837	5.96	0.822	0.298
33	4.47	0.804	5.68	0.785	0.285
32	4.47	0.776	5.44	0.753	0.274
31	4.48	0.749	5.22	0.722	0.263
30	4.49	0.724	5.00	0.694	0.253
29	4.49	0.700	4.79	0.666	0.243

TABLE 1 (Continued)

Z	K_1	K_2	K_3	K_4	
	$\frac{sec^2 °K}{m^2}$		$\frac{1}{°K^3}$	(°K)	
(m)		(sec)		Day	Night
28	4.50	0.677	4.60	0.640	0.235
27	4.50	0.656	4.42	0.615	0.225
26	4.51	0.635	4.25	0.593	0.218
25	4.52	0.616	4.09	0.572	0.210
24	4.52	0.597	3.94	0.551	0.203
23	4.52	0.580	3.81	0.533	0.197
22	4.53	0.565	3.69	0.518	0.191
21	4.54	0.550	3.58	0.502	0.185
20	4.55	0.635	3.47	0.487	0.180

$$T_{atm} = T_t - \left(K_1(Z)V^2\right) + \left[K_2(Z)\left(\frac{dT_t}{d_t}\right)\right] + \left(K_3(Z)T_t^4\right) - \left(K_4(Z)\right)$$

ATTACHMENT 10

SAMPLE COPY OF ROCOB DATA
(SEE ATTACHMENT 5 FOR INPUT DATA)

ATTACHMENT 11

BREAKDOWN OF ROCOB CODE

ROCK 3

ROCKETSONDE MESSAGE CODE

SECTION A - INTRODUCTION

1.1 A ROCOB report or a bulletin of ROCOB reports from a land rocketsonde station is identified by $M_iM_iM_jM_j$ = RRXX. The identifier for ROCOB SHIP is SSXX. (The name ROCOB or ROCOB SHIP shall not be included in the report.)

1.2 The code form is divided into three sections as follows:

SECTION 1 - Identification data

SECTION 2 - Data for specified geometric altitudes

SECTION 3 - Data for isobaric surfaces (optional)
(Sections 2 and 3 cannot be transmitted as a separate report.)

SECTION B - MESSAGE FORMAT

1.1 FM39.F ROCOB — Upper-level temperature and wind (possibly air density) report from land rocketsonde station.

SECTION 1	$M_iM_iM_jM_j$	$YYCG_g$ MMJJJ	IIiii $a_1e_T\epsilon_Tc_Tm_r$ $r_me_we_wc_wm_r$
SECTION 2	HHZ_TTT	ddfff	$(9d_pP_1P_1P_1)$
	HHZ_TTT	ddfff	$(9d_pP_1P_1P_1)$
	.....	.....	.....
SECTION 3	$11Z_TT_1T_1$	$P_1P_1h_1h_1h_1$	ddfff
	.....	.....	.....
	$11Z_TT_nT_n$	$P_nP_nh_nh_nh_n$	$d_nd_nf_nf_nf_n$
	$22Z_TT_1T_1$	$P_1P_1h_1h_1h_1$	$d_1d_1f_1f_1f_1$
	.....	.....	.....
	$22Z_TT_nT_n$	$P_nP_nh_nh_nh_n$	$d_nd_nf_nf_nf_n$
	33...	.....	.....
	44...	.....	.....
	etc.		

SECTION C - DEFINITIONS

1.1 Symbolic form table for land stations

$M_iM_iM_jM_j$ = RRXX - ROCOB report from a land station

YY = Day of the month (GMT) on which the observation was taken.

GG_g = Time of launch in hours and nearest tens of minutes GMT

MM = Month of year (01 = Jan, 12 = Dec. etc.)

JJJ = Year (980 = 1980, 981 = 1981, etc.)

IIiii = International Index Number of the observing station (II = Block Nbr and iii = Station Nbr, both given in H.C. Pub. No. 119.)

a_1 = Reason for no report and ground equipment employed (Code Table 1).

e_Te_T = Type of thermodynamic sensing equipment (Code Table 2).

c_T = Thermodynamic correction technique (Code Table 3).

m_r = Method of reducing data in temperature or wind group (Code Table 4).

r_m = Type of rocket motor (Code Table 5).

e_we_w = Type of wind sensing equipment (Code Table 6).

e_w = Wind correction technique (Code Table 3).

HH = Altitude, in kilometers, of the level for which data are reported.

Z_T = Character of the temperature reported by TT (Code Table 7).

TT = Air temperature in whole degrees Celsius at the altitude given by HH. (For a temperature of -570, the coding is TT=57 and Z_T=5.) When temperature is missing, two solidi (//) are reported for TT.

dd = True direction, in tens of degrees, from which the wind is blowing at the altitude given by HH (Code Table 8). (See note below fff.)

fff = Windspeeds are preferred in meters/sec at the altitude given by HH. If windspeeds are given in knots, 50 will be added to YY.

NOTE: (1) When wind direction or speed are missing, use solidi for ddfff as appropriate.

(2) The thickness of the layer through which wind direction and speed are determined shall be 2 km for both mandatory and significant levels; i.e., 1 km on each side of the altitude reported.

9 = Indicator figure for the density group, $9d_pP_1P_1P_1$.

d_p = Decimal point locator. The number of places to the left of the third significant figure. The decimal point must be so placed as to obtain the actual density in g/m^3 by $P1P_1P_1$.

NOTE: The third significant figure is always included in the value reported for symbol d_p.

EXAMPLE:

Assume 120 g/m^3, the group is coded 90120 (i.e., $d_p = 0$).

Assume 1.20 g/m^3, the group is coded 92120 (i.e., $d_p = 2$).

Assume 0.281 g/m^3, the group is coded 93281 (i.e., $d_p = 3$).

Assume 0.0788 g/m^3, the group is coded 94788 (i.e., $d_p = 4$).

$P_1\ P_1\ P_1$ = Density in gm/m^3 rounded to three significant figures at the altitude given by HH.

11 = Indicator figures - Standard isobaric surface data follow;

temperature ($Z_TT_1T_1$ ... $Z_TT_nT_n$) is reported in the same manner as in section 2, pressure P_1P_1 .... P_nP_n) is reported in whole millibars, altitude ($h_1h_1h_1$ ... $h_nh_nh_n$) is reported in geopotential hectometers.

22 = Indicator figures - Standard isobaric surface data follow; temperature is reported in the same manner as in section 2, pressure is reported in tenths of a millibar and altitude is reported in geopotential hectometers.

33 = Indicator used for reporting pressure in hundredths of a millibar and altitude in geopotential hectometers.

44 = Indicator used for reporting pressure in thousandths of a millibar and altitude in geopotential hectometers.

55 = Indicator used for reporting pressure in ten-thousandths of a millibar and altitude in geopotential hectometers.

66 = Indicator used for reporting pressure in hundred-thousandths of a millibar and altitude in geopotential kilometers.

d_1d_1 = Wind direction in tens of degrees (Code Table 8) at the reported isobaric surfaces.

$f_1f_1f_1$ = Windspeed in meters/sec at the reported isobaric surfaces.

ATTACHMENT 12

TABLE OF THE LOGS OF MANDATORY PRESSURE LEVELS

LOG OF MANDATORY PRESSURE LEVELS

LEVEL	50 MB	30 MB	20 MB	10 MB	7 MB
LOG	1.69897	1.47712	1.30102	1.0	0.84509
LEVEL	5 MB	3 MB	2 MB	1 MB	
LOG	0.69897	0.47712	0.30102	0.0	
LEVEL	0.7 MB	0.5 MB	0.4 MB	0.3 MB	
LOG	−0.15490	−0.30102	−0.39794	−0.52287	
LEVEL	0.2 MB	0.1 MB			
LOG	−0.699897	−1.			
LEVEL	0.07 MB	0.05 MB	0.03 MB	0.02 MB	
LOG	−1.15490	−1.30102	−1.52287	−1.69897	
LEVEL	0.01 MB				
LOG	−2.0				
LEVEL	0.007 MB	0.005 MB	0.003 MB	0.002 MB	
LOG	−2.15490	−2.30102	−2.52287	−2.69897	
LEVEL	0.001 MB				
LOG	−3.0				
LEVEL	0.0007 MB	0.0005 MB	0.0003 MB	0.0002 MB	
LOG	−3.15490	−3.30102	−3.52287	−3.69987	
LEVEL	0.0001 MB				
LOG	−4.0				
LEVEL	0.00007 MB	0.00005 MB	0.00003 MB	0.00002 MB	
LOG	−4.15490	−4.30102	−4.52287	−4.69897	
LEVEL	0.00001 MB				
LOG	−5.0				

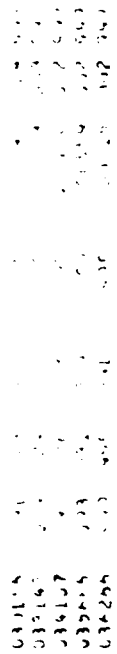
ATTACHMENT 13

SAMPLE COPY OF HIGH-ALTITUDE METEOROLOGICAL DATA (SEE ATTACHMENT 5 FOR INPUT DATA)

TEST NUMBER [illegible]
CAPE CANAVERAL AFS, FLA.
13 DEC [illegible]

SUPER LOAT	RUN-LIT							
1300[illegible]	15	3	-43	-2	-16	6	-54	99.999+99.999+9[illegible]
2030[illegible]	17	-3	-[illegible]	-1	-17	4	-62	99.999+99.999+9[illegible]
2[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2300079	18	-3	-[illegible]	-3	-[illegible]	[illegible]	-57	[illegible]
2300103	12	3	-[illegible]	3	-1[illegible]	6	-[illegible]	03.63[illegible]+15.[illegible]14+12[illegible]
2400103	14	4	-[illegible]	3	-[illegible]	7	-54	03.114+14.955+1297
2500[illegible]	18	-1	-14	-1	-16	7	-54	-12.666+14.236+1297
2500[illegible]	22	-3	-24	-2	-22	8	-49	-12.291+13.[illegible]45+1300
2700[illegible]	23	-4	-22	-3	-23	10	-47	-11.971+13.042+1301
2300[illegible]	24	-2	-22	-3	-22	9	-46	-11.[illegible]98+12.[illegible]62+1302
2900[illegible]	23	1	-22	-1	-23	10	-45	-11.456+12.230+1303
3000[illegible]	25	-1	-24	0	-25	11	-44	-11.263+11.920+1304
3100[illegible]	25	0	-25	0	-26	12	-42	-11.090+11.644+1305
3200[illegible]	25	0	-27	0	-26	13	-39	-10.933+01.400+1307
3300[illegible]	26	0	-25	-1	-25	13	-38	-10.176+01.211+1309
3400[illegible]	26	-1	-26	-1	-26	15	-35	-17.096+01.036+1310
3500[illegible]	26	-1	-27	1	-26	17	-36	-15.[illegible]58+09.037+0309
3600[illegible]	27	1	-26	1	-26	17	-35	-15.344+07.817+0309
3700[illegible]	28	3	-25	2	-26	17	-32	-14.642+06.715+0311
3800[illegible]	30	3	-27	4	-30	19	-31	-14.038+05.610+0312
3900[illegible]	31	3	-29	5	-34	23	-29	-13.[illegible]16+05.[illegible]08+0314
4000[illegible]	35	5	-37	4	-36	27	-26	-13.066+04.314+0315
4100[illegible]	35	-1	-34	-2	-35	28	-23	-12.678+03.725+0317
4200[illegible]	37	-1[illegible]	-39	-12	-35	28	-20	-12.343+03.223+0319
4300[illegible]	42	-3	-42	-6	-42	29	-17	-12.053+02.797+0321
4400[illegible]	43	-11	-42	-9	-42	30	-16	-11.[illegible]01+02.429+0322
4500[illegible]	45	-1[illegible]	-47	-10	-46	32	-14	-11.581+02.129+0323
4600[illegible]	53	-1[illegible]	-[illegible]	-17	-5[illegible]	35	-13	-21.3[illegible]9+01.[illegible]61+0325
4700[illegible]	55	-4	-[illegible]	-11	-54	38	-12	-21.221+01.629+0324
4800[illegible]	55	-2	-[illegible]	-2	-[illegible]	43	-11	-21.073+01.428+0325
4900[illegible]	53	9	-50	7	-52	48	-10	-29.445-11.252+0325
5000[illegible]	41	[illegible]3	-34	12	-39	52	-6	-38.320-11.084+0328
5100[illegible]	35	[illegible]	-24	22	-27	55	-3	-27.344-19.479-[illegible]329
5200[illegible]	32	[illegible]9	-2[illegible]	21	-24	57	-9	-26.478-18.530-1324
5300[illegible]	40	7	-43	13	-38	60	-1[illegible]	-35.702-17.584-1325
5400[illegible]	47	-3	-47	0	-47	64	-12	-35.016-16.696-1324
5500[illegible]	53	-5	-54	-7	-52	67	-16	-34.409-15.968-1322
5600[illegible]	53	-1	-51	-5	-53	71	-28	-33.[illegible]65-15.935-1319
5700[illegible]	44	1	-47	3	-46	75	-26	-43.380-14.[illegible]56-1316
5800[illegible]	42	-7	-44	-1	-42	79	-30	-52.940-14.227-1313
5900[illegible]	45	-[illegible]	-52	-[illegible]	-48	86999999999	.999+99.999+9999	
6000[illegible]	46	-[illegible]	-63	-24	-50	9499999999	.999+99.999+9999	
6100[illegible]	56	-[illegible]	-63	-24	-60	9599999999	.999+99.999+9999	
2047091	14	4	-45	0	-16	5	-60	05.060+18.156+1293
2141093	14	3	-14	3	-16	7	-54	03.000+14.777+1297
2[illegible]	[illegible]	[illegible]	-[illegible]	-3	-23	[illegible]	-48	-12.000+13.0[illegible]9+130[illegible]
3[illegible]	[illegible]	[illegible]	-[illegible]	0	-26	13	-40	-11.000+11.493+1304
3300[illegible]	[illegible]	-4	-25	-1	-25	16	-35	-17.000+01.022+13[illegible]0
3421[illegible]	27	1	-25	2	-27	17	-34	-15.000+07.286+0310
3500[illegible]	35	3	-37	3	-36	27	-25	-13.000+04.213+0316
4235[illegible]	43	-3	-46	-2	-43	29	-17	-12.000+02.721+0321
4612[illegible]	44	4	-54	3	-[illegible]	[illegible]3	-11	-2[illegible].000+01.32[illegible]+0325
5030[illegible]	34	23	-33	24	-[illegible]	[illegible]	-[illegible]	-27.000-19.09[illegible]-1325
5344[illegible]	47	-3	-47	1	-47	64	-12	-35.000-16.676-1324
5518[illegible]	54	-3	-[illegible]	-7	-54	70	-19	-34.000-15.494-1319
5727[illegible]	43	-5	-44	0	-43	79	-30	-43.000-14.290-1313

GEOMM	DIR	MPS	TEMP	OPT	PRESS	IR	RH
000005	003	000	274	262	101779	403	093
000475	330	003	284	24F	096511	377	081
000965	003	004	246	221	091337	350	086
001214	019	005	243	17C	08HF03	314	065
001708	032	006	201	161	083922	296	073
001946	037	006	189	110	081648	274	060
002185	044	005	190	02K	079408	234	024
002949	035	004	139	007	072609	226	041
003221	035	004	130	09M	070295	205	021
004039	026	004	05H	C6L	063701	195	041
004311	031	003	045	100	061819	185	032
004826	015	002	002	04D	057634	166	070
005078	002	002	021	07P	056041	178	065
005335	300	002	02L	191	054266	162	028
005578	233	002	03H	25L	052630	155	016
005865	159	003	150	200	043433	136	06F
007324	177	003	17J	4HP	041573	129	01A
008377	155	006	23P	41P	038433	114	017
010234	170	011	39I	43J	028054	093	020
012496	164	007	56P	66C	019947	077	026
013795	165	007	49N	51P	016179	069	025
014557	152	011	51D	52D	013686	054	999
015147	151	004	71L	99F	011565	050	999
015496	151	001	67J	99F	010389	047	999
016070	03J	003	71P	99H	011418	043	999
016409	091	00E	72J	99F	011501	041	999
021414	333	024	57J	999	006654	017	999
024611	003	01P	43J	999	002711	010	999
025036	000	01A	47J	999	002055	008	999



ATTACHMENT 14

SAMPLE COPY OF CARD OUTPUT
(SEE ATTACHMENT 5 FOR INPUT DATA)

TEST NUMBER [illegible]
CAPE CANAVERAL AFS,FL.
13007 7 AUG 1984

SUPER LOKI PWN-110

ALT GEOPM	DIR DEG	SPD MPS	TEMP K	TEMP CDEG	PRESS MBS	DENSITY G/M3	RE MPS	VS MPS	SHR /SEC
[illegible]	[illegible]	17	[illegible]	-.43	999.9999	999.9999	3.76	291.63	.999
21000	54	16	213.50	-.44	49.7595	81.1814	5.69	293.09	.002
22000	79	15	215.74	-.45	43.6979	69.8139	5.39	294.59	.003
23000	100	15	217.82	-.46	38.3541	58.1435	5.05	296.09	.005
24000	118	15	219.92	-.47	33.1395	49.5547	4.77	296.73	.001
25000	[illegible]	14	219.45	-.50	28.6804	42.3[illegible]	7.11	297.09	.004
26000	56	23	223.63	-.52	23.9059	35.6512	7.37	300.04	.004
27000	63	23	225.66	-.54	19.7078	30.4223	9.76	301.23	.001
28000	64	23	227.32	-.56	16.9745	26.0163	8.95	302.37	.000
29000	67	23	228.64	-.58	14.6377	22.3039	9.93	303.24	.002
30000	90	25	229.14	-.60	12.6293	19.2017	11.34	303.57	.002
31000	90	25	231.03	-.67	10.9041	16.4412	12.40	304.64	.002
32000	90	26	234.76	-.68	9.4334	13.9991	13.87	307.28	.000
33000	88	26	237.11	-.69	8.1761	12.0104	13.32	308.64	.001
34000	89	26	238.57	-.72	7.0957	10.3618	15.53	309.76	.000
35000	92	26	237.40	-.78	6.1584	9.0373	17.36	309.00	.002
36000	93	27	238.15	-.83	5.3437	7.8169	17.27	309.49	.001
37000	96	27	240.60	-.83	4.6415	6.7152	16.86	311.20	.001
38000	97	30	242.14	-.88	4.0380	5.8098	19.17	312.07	.003
39000	98	35	244.56	-1.05	3.5155	5.0079	23.24	313.63	.004
40000	94	35	247.61	-1.18	3.0641	4.3139	26.81	315.57	.002
41000	96	35	250.47	-1.22	2.6784	3.7255	28.22	317.39	.006
42000	74	37	253.26	-1.26	2.3433	3.2234	28.33	319.16	.010
43000	94	42	255.76	-1.26	2.0532	2.7967	29.00	320.73	.010
44000	78	43	257.25	-1.34	1.8009	2.4389	29.56	321.66	.005
45000	73	45	258.68	-1.41	1.5809	2.1291	31.77	322.55	.003
46000	71	53	259.90	-1.56	1.3847	1.8615	35.39	323.31	.009
47000	79	55	260.97	-1.73	1.2206	1.6295	38.31	323.97	.008
48000	85	55	261.90	-1.91	1.0735	1.4279	43.46	324.54	.009
49000	98	53	262.63	-2.36	.9445	1.2519	47.74	325.13	.009
50000	109	41	266.58	-2.64	.8320	1.0857	51.91	327.68	.015
51000	129	35	269.91	-2.20	.7344	.9479	55.05	329.68	.015
52000	131	32	264.56	-2.27	.6478	.8530	57.48	326.23	.003
53000	109	40	261.93	-2.96	.5702	.7584	59.56	324.57	.017
54000	90	47	260.95	-3.10	.5016	.6696	63.70	323.96	.015
55000	92	53	257.69	-3.00	.4408	.5968	67.25	321.69	.009
56000	95	53	252.35	-3.45	.3865	.5335	71.09	318.58	.003
57000	94	49	247.62	-3.93	.3390	.4756	74.74	315.58	.009
58000	88	42	243.04	-4.53	.2949	.4227	79.20	312.65	.007
59000	89	46	999.99	0.00	999.9999	999.9999	69.68	999.99	.015
60000	88	54	999.99	0.00	999.9999	999.9999	94.29	999.99	.018
60334	89	54	999.99	0.00	999.9999	999.9999	94.66	999.99	.019

TEST NUMBER 53-2
CAPE CANAVERAL AFS,FL.
13007 7 AUG 1984

SUPER LOKI PWN-110

ALT GEOPM	DIR DEG	SPD MPS	TEMP K	TEMP CDEG	PRESS MBS	DENSITY G/M3	RE MPS	VS MPS	SHR /SEC
20010	56	17	211.46	-.43	999.9999	999.9999	3.76	291.63	.999
20250	45	14	211.82	-.43	56.0702	92.2199	4.07	291.86	.003
20500	59	15	212.50	-.43	53.4761	88.3285	5.01	292.34	.004
20750	62	17	213.06	-.44	51.7742	84.6578	5.66	292.73	.007
21000	91	15	213.59	-.44	49.7595	81.1614	5.63	293.09	.006
21250	84	15	214.12	-.45	47.8280	77.8167	5.57	293.46	.005

A-137

ROCK 3

[illegible]										
[illegible]										
[illegible]										
[illegible]										
[illegible]										
23500	[illegible]	[illegible]	214.46	-.45	29.3541	[illegible]	[illegible]	[illegible]	296.40	.007
23750	[illegible]	[illegible]	215.16	-.47	28.9704	[illegible]	[illegible]	[illegible]	296.91	.004
24000	[illegible]	[illegible]	215.72	-.47	28.6424	[illegible]	[illegible]	[illegible]	296.50	.003
24250	[illegible]	[illegible]	216.22	-.47	28.3455	[illegible]	[illegible]	[illegible]	296.22	.003
24500	[illegible]	[illegible]	216.72	-.47	28.1339	[illegible]	[illegible]	[illegible]	296.73	.004
24750	[illegible]	[illegible]	217.25	-.47	27.9190	[illegible]	[illegible]	[illegible]	296.44	.005
25000	[illegible]	[illegible]	217.67	-.48	27.8228	[illegible]	[illegible]	[illegible]	296.46	.005
25250	[illegible]	[illegible]	218.07	-.48	27.7298	[illegible]	[illegible]	[illegible]	296.70	.007
25500	[illegible]	[illegible]	218.45	-.50	27.6804	[illegible]	[illegible]	[illegible]	297.09	.006
25750	[illegible]	[illegible]	220.41	-.52	27.6735	[illegible]	[illegible]	[illegible]	297.77	.005
26000	[illegible]	[illegible]	221.79	-.51	24.7108	[illegible]	[illegible]	[illegible]	298.47	.005
26250	[illegible]	[illegible]	222.03	-.51	23.7892	[illegible]	[illegible]	[illegible]	299.44	.003
26000	[illegible]	[illegible]	223.83	-.52	22.9655	[illegible]	[illegible]	[illegible]	300.06	.002
26250	[illegible]	[illegible]	224.46	-.53	22.0574	[illegible]	[illegible]	[illegible]	300.65	.002
26500	[illegible]	[illegible]	224.90	-.53	21.2434	[illegible]	[illegible]	[illegible]	300.75	.001
26750	[illegible]	[illegible]	225.31	-.54	20.4600	[illegible]	[illegible]	[illegible]	301.03	.001
27000	[illegible]	[illegible]	225.69	-.54	19.7078	[illegible]	[illegible]	[illegible]	301.28	.001
27250	[illegible]	[illegible]	226.05	-.55	18.9838	[illegible]	[illegible]	[illegible]	301.54	.000
27500	[illegible]	[illegible]	226.49	-.55	18.2882	[illegible]	[illegible]	[illegible]	301.81	.001
27750	[illegible]	[illegible]	226.96	-.55	17.6190	[illegible]	[illegible]	[illegible]	302.09	.001
28000	[illegible]	[illegible]	227.32	-.56	16.9755	[illegible]	[illegible]	[illegible]	302.37	.000
28250	[illegible]	[illegible]	227.73	-.56	16.3569	[illegible]	[illegible]	[illegible]	302.64	.001
28500	[illegible]	[illegible]	228.13	-.56	15.7614	[illegible]	[illegible]	[illegible]	302.91	.002
28750	[illegible]	[illegible]	228.40	-.56	15.1891	[illegible]	[illegible]	[illegible]	303.08	.002
29000	[illegible]	[illegible]	228.64	-.56	14.6377	[illegible]	[illegible]	[illegible]	303.24	.002
29250	[illegible]	[illegible]	228.76	-.58	14.1071	[illegible]	[illegible]	[illegible]	303.33	.002
29500	[illegible]	[illegible]	228.89	-.59	13.5958	[illegible]	[illegible]	[illegible]	303.41	.002
29750	[illegible]	[illegible]	229.01	-.59	13.1037	[illegible]	[illegible]	[illegible]	303.49	.002
30000	[illegible]	[illegible]	229.14	-.60	12.6293	[illegible]	[illegible]	[illegible]	303.57	.002
30250	[illegible]	[illegible]	229.36	-.61	12.1729	[illegible]	[illegible]	[illegible]	303.72	.001
30500	[illegible]	[illegible]	229.58	-.63	11.7330	[illegible]	[illegible]	[illegible]	303.87	.001
30750	[illegible]	[illegible]	230.25	-.65	11.3107	[illegible]	[illegible]	[illegible]	304.31	.002
31000	[illegible]	[illegible]	231.05	-.67	10.9041	[illegible]	[illegible]	[illegible]	304.84	.002
31250	[illegible]	[illegible]	231.96	-.68	10.5137	[illegible]	[illegible]	[illegible]	305.44	.001
31500	[illegible]	[illegible]	233.01	-.67	10.1394	[illegible]	[illegible]	[illegible]	306.13	.000
31750	[illegible]	[illegible]	234.06	-.67	9.7784	[illegible]	[illegible]	[illegible]	306.82	.000
32000	[illegible]	[illegible]	234.76	-.68	9.4334	[illegible]	[illegible]	[illegible]	307.28	.001
32250	[illegible]	[illegible]	235.45	-.68	9.1006	[illegible]	[illegible]	[illegible]	307.73	.001
32500	[illegible]	[illegible]	236.07	-.68	8.7805	[illegible]	[illegible]	[illegible]	308.13	.001
32750	[illegible]	[illegible]	236.63	-.68	8.4726	[illegible]	[illegible]	[illegible]	308.50	.002
33000	[illegible]	[illegible]	237.16	-.69	8.1761	[illegible]	[illegible]	[illegible]	308.84	.002
33250	[illegible]	[illegible]	237.68	-.71	7.8907	[illegible]	[illegible]	[illegible]	309.18	.001
33500	[illegible]	[illegible]	238.19	-.71	7.6158	[illegible]	[illegible]	[illegible]	309.51	.001
33750	[illegible]	[illegible]	238.52	-.71	7.3511	[illegible]	[illegible]	[illegible]	309.73	.002
34000	[illegible]	[illegible]	238.87	-.72	7.0957	[illegible]	[illegible]	[illegible]	309.96	.002
34250	[illegible]	[illegible]	239.42	-.73	6.8492	[illegible]	[illegible]	[illegible]	309.96	.002
34500	[illegible]	[illegible]	239.85	-.74	6.6110	[illegible]	[illegible]	[illegible]	309.45	.002
34750	[illegible]	[illegible]	237.75	-.75	6.3808	[illegible]	[illegible]	[illegible]	309.23	.002
35000	[illegible]	[illegible]	237.45	-.78	6.1584	[illegible]	[illegible]	[illegible]	309.00	.001
35250	[illegible]	[illegible]	237.33	-.79	5.9436	[illegible]	[illegible]	[illegible]	308.89	.000
35500	[illegible]	[illegible]	237.47	-.81	5.7362	[illegible]	[illegible]	[illegible]	308.98	.000
35750	[illegible]	[illegible]	237.73	-.81	5.5363	[illegible]	[illegible]	[illegible]	309.21	.001
36000	[illegible]	[illegible]	237.15	-.83	5.3437	[illegible]	[illegible]	[illegible]	309.49	.001
36250	[illegible]	[illegible]	236.83	-.84	5.1580	[illegible]	[illegible]	[illegible]	309.81	.002
36500	[illegible]	[illegible]	239.15	-.85	4.9793	[illegible]	[illegible]	[illegible]	310.14	.001
36750	[illegible]	[illegible]	239.56	-.86	4.8072	[illegible]	[illegible]	[illegible]	310.56	.001
37000	[illegible]	[illegible]	240.80	-.86	4.6415	[illegible]	[illegible]	[illegible]	311.20	.002
37250	[illegible]	[illegible]	241.66	-.88	4.4823	[illegible]	[illegible]	[illegible]	311.76	.002
37500	[illegible]	[illegible]	242.45	-.96	4.3288	[illegible]	[illegible]	[illegible]	312.27	.003
37750	[illegible]	[illegible]	242.24	-.85	4.1809	[illegible]	[illegible]	[illegible]	312.	.003

39500	93	55	249.15	-1.12	3.2923	4.6415	41.41	316.44	.002
39750	97	56	248.85	-1.15	3.1723	4.4768	42.32	317.11	.003
40000	98	56	249.01	-1.13	3.2644	4.5935	41.63	316.57	.003
40250	94	55	249.35	-1.20	3.3037	4.6477	41.34	316.83	.006
40500	92	54	249.01	-1.23	3.2852	4.6252	41.73	316.49	.007
40750	89	53	249.77	-1.21	3.2700	4.6035	41.51	316.95	.007
41000	86	52	250.47	-1.22	3.0784	4.3285	44.22	317.39	.007
41250	83	51	251.17	-1.23	2.8901	4.0586	46.87	317.83	.007
41500	80	50	251.88	-1.24	2.5047	3.4645	48.31	318.27	.007
41750	76	49	252.59	-1.24	2.4226	3.3415	49.24	318.72	.010
42000	73	48	253.25	-1.26	2.3423	3.2234	50.23	319.14	.014
42250	69	47	253.93	-1.29	2.2648	3.1099	51.24	319.58	.013
42500	72	47	254.61	-1.30	2.1931	3.0067	52.40	320.01	.011
42750	75	47	255.26	-1.28	2.1219	2.8966	53.59	320.41	.018
43000	74	47	255.76	-1.26	2.0532	2.7967	54.00	320.73	.017
43250	74	47	256.13	-1.25	1.9859	2.7025	54.00	320.96	.011
43500	76	47	256.53	-1.27	1.9227	2.6112	53.74	321.21	.005
43750	81	48	256.92	-1.28	1.8608	2.5232	54.14	321.45	.015
44000	78	48	257.25	-1.34	1.8009	2.4389	54.56	321.66	.010
44250	77	48	257.63	-1.34	1.7431	2.3571	54.61	321.90	.003
44500	78	49	258.00	-1.35	1.6872	2.2782	55.24	322.13	.003
44750	79	49	258.34	-1.38	1.6331	2.2023	55.49	322.34	.004
45000	78	49	258.68	-1.41	1.5809	2.1291	55.77	322.55	.004
45250	77	49	259.00	-1.45	1.5304	2.0585	56.22	322.78	.005
45500	76	49	259.32	-1.47	1.4816	1.9904	56.13	322.96	.007
45750	73	51	259.63	-1.50	1.4344	1.9247	56.29	323.14	.013
46000	71	53	259.90	-1.56	1.3887	1.8615	56.39	323.31	.012
46250	71	54	260.24	-1.61	1.3446	1.8005	56.27	323.48	.005
46500	72	55	260.46	-1.63	1.3019	1.7413	56.85	323.66	.006
46750	75	55	260.74	-1.65	1.2606	1.6842	57.57	323.84	.012
47000	79	55	260.97	-1.73	1.2206	1.6295	58.31	323.97	.015
47250	82	55	261.20	-1.78	1.1820	1.5765	59.00	324.12	.012
47500	84	55	261.44	-1.83	1.1446	1.5253	61.37	324.27	.009
47750	86	55	261.70	-1.85	1.1084	1.4756	61.85	324.43	.007
48000	88	55	261.90	-1.91	1.0735	1.4279	63.48	324.56	.007
48250	90	56	262.08	-2.01	1.0396	1.3820	64.26	324.68	.008
48500	92	56	262.27	-2.05	1.0068	1.3374	65.51	324.78	.008
48750	95	56	262.43	-2.14	.9751	1.2945	66.44	324.88	.010
49000	98	56	262.63	-2.36	.9445	1.2519	67.74	325.13	.014
49250	100	55	263.08	-2.52	.9148	1.2087	69.06	325.46	.016
49500	102	46	264.76	-2.58	.8862	1.1660	69.85	326.33	.015
49750	104	43	265.91	-2.59	.8586	1.1250	70.63	327.02	.014
50000	108	41	266.98	-2.64	.8320	1.0857	71.91	327.68	.015
50250	113	38	267.98	-2.74	.8063	1.0482	72.46	328.30	.017
50500	119	37	269.11	-2.86	.7815	1.0117	73.66	328.99	.016
50750	124	36	269.88	-2.98	.7576	.9760	74.50	329.45	.015
51000	129	35	269.91	-2.90	.7344	.9479	75.06	329.48	.013
51250	133	34	269.86	-2.87	.7119	.9225	75.53	329.42	.010
51500	135	33	267.48	-2.85	.6899	.8986	76.01	327.99	.006
51750	135	31	266.02	-2.13	.6686	.8756	76.62	327.09	.004
52000	131	32	264.56	-2.27	.6478	.8530	77.46	326.20	.008
52250	125	34	263.38	-2.49	.6275	.8301	77.46	325.47	.016
52500	119	36	262.68	-2.65	.6078	.8061	78.37	325.04	.017
52750	113	38	262.22	-2.85	.5887	.7822	79.22	324.75	.017
53000	108	40	261.93	-2.96	.5702	.7584	79.58	324.57	.017
53250	103	42	261.69	-3.03	.5522	.7352	80.83	324.42	.015
53500	99	44	261.48	-3.08	.5348	.7128	81.09	324.29	.015
53750	94	46	261.28	-3.11	.5179	.6906	83.03	324.17	.015
54000	90	47	261.08	-3.10	.5016	.6690	83.76	323.96	.015
54250	87	47	260.41	-3.05	.4857	.6478	84.46	323.53	.013

[illegible]				-[illegible]	.47[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
54750	[illegible]	[illegible]	[illegible]	-[illegible]	.4[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
55000	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
55250	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
55500	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
55750	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
56000	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
56250	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
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56750	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
57000	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
57250	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
57500	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
57750	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
58000	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
58250	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
58500	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
58750	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
59000	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
59250	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
59500	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
59750	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
60000	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]
60324	[illegible]	[illegible]	[illegible]	-[illegible]	.[illegible]	.[illegible]	[illegible]	[illegible]	[illegible]

TEST NUMBER 5342
CAPE CANAVERAL AFS,FL.
13007 7 AUG 1984

SUPER LOKI PWN-110

ALT GEOMET	DIR DEG	SPD KTS	TEMP K	TEMP CORR	PRESS MBS	DENSITY G/M3	RF FPS	VS KTS	SHR /SEC
66000	86	34	211.46	-.43	57.2777	94.3655	12.40	566.51	.999
67000	89	36	212.30	-.43	54.5538	89.5235	15.92	567.63	.004
68000	92	33	213.01	-.44	51.9686	84.9959	18.17	568.58	.006
69000	91	30	213.65	-.44	49.5135	80.7354	18.08	569.44	.006
70000	87	28	214.31	-.45	47.1813	76.6982	18.44	570.31	.004
71000	82	27	214.97	-.44	44.9662	72.8719	17.67	571.19	.004
72000	79	28	215.64	-.45	42.8619	69.2454	17.71	572.09	.004
73000	81	29	216.30	-.46	40.8622	65.8139	18.09	572.96	.002
74000	88	30	216.96	-.46	38.9614	62.5685	19.39	573.80	.006
75000	97	30	217.55	-.46	37.1542	59.4987	19.61	574.61	.008
76000	103	30	218.14	-.47	35.4357	56.5930	20.30	575.39	.005
77000	104	30	218.67	-.47	33.8009	53.8516	21.04	576.08	.003
78000	105	30	218.93	-.47	32.2444	51.3107	21.53	576.43	.001
79000	101	31	219.96	-.47	30.7604	48.9605	22.53	576.36	.004
80000	96	31	219.73	-.48	29.3442	46.7382	23.25	576.16	.005
81000	90	33	219.80	-.49	27.9932	44.5712	23.36	576.26	.006
82000	85	35	219.42	-.50	26.7055	42.4023	23.00	577.08	.007
83000	84	38	220.71	-.51	25.4840	40.2246	22.25	578.77	.005
84000	84	41	222.20	-.51	24.3250	38.1229	22.20	580.84	.004
85000	85	42	223.62	-.51	23.2256	36.1867	25.26	582.54	.002
86000	86	43	224.36	-.53	22.1814	34.4419	23.24	583.54	.002
87000	87	44	224.93	-.53	21.1871	32.8105	30.70	584.27	.001
88000	83	44	225.42	-.54	20.2391	31.2742	32.24	584.91	.001
89000	83	45	225.89	-.55	19.3357	29.8206	31.87	585.52	.001
90000	83	44	226.38	-.55	18.4747	28.4314	31.09	586.15	.001
91000	83	44	226.86	-.55	17.6535	27.1076	30.11	586.80	.001
92000	84	44	227.39	-.56	16.8708	25.8478	28.96	587.46	.000
93000	85	44	227.86	-.56	16.1245	24.6507	29.42	588.10	.002
94000	86	44	228.30	-.56	15.4125	23.5135	30.60	588.53	.002
95000	87	45	228.80	-.56	14.7330	22.4325	32.33	589.03	.002
96000	88	45	229.27	-.58	14.0845	21.4068	33.90	589.24	.002
97000	89	45	229.82	-.59	13.4648	20.4314	35.37	589.43	.002
98000	[illegible]	47	229.47	-.59	12.8729	19.5076	36.66	589.63	.02
99000	[illegible]	47	229.23	-.61	12.3076	18.6949	37.23	589.[illegible]	.02

104000	90	91	235.81	-.65	9.0240	13.3431	42.91	597.69	.001
107000	90	90	236.33	-.67	8.9391	12.7554	42.46	598.69	.001
[illegible]	[illegible]	[illegible]	236.91	-.69	[illegible]	12.1592	43.22	599.74	.002
109000	89	89	237.63	-.71	7.9207	[illegible]	44.06	[illegible]	.002
110000	88	88	238.23	-.71	7.8658	[illegible]	44.63	601.20	.001
111000	87	87	238.83	-.71	7.8054	10.8065	45.24	601.41	.002
112000	86	86	239.50	-.72	7.7489	10.1645	45.80	601.65	.002
113000	90	91	238.16	-.74	8.0651	9.7495	44.74	601.22	.002
114000	92	91	237.75	-.75	8.1833	9.8535	44.27	600.79	.002
115000	92	92	237.36	-.78	8.1131	9.9723	44.68	600.20	.001
116000	92	92	237.31	-.80	8.2540	9.9940	44.74	600.14	.000
117000	93	91	237.80	-.81	8.2681	9.2199	44.32	600.61	.001
118000	93	91	238.09	-.82	8.3691	7.8562	44.83	601.12	.001
119000	94	93	238.68	-.84	8.1425	7.5062	45.27	601.86	.002
120000	94	93	239.31	-.85	8.9262	7.1715	44.92	602.66	.001
121000	94	94	240.02	-.87	8.7197	6.8418	45.13	603.94	.001
122000	95	94	241.46	-.88	8.5226	6.5254	46.02	605.35	.002
123000	97	95	242.43	-.86	8.3345	6.2289	47.72	606.58	.003
124000	97	97	242.70	-.86	8.1546	5.9760	48.74	606.29	.003
125000	97	98	242.22	-.90	8.9822	5.7275	49.08	606.32	.004
126000	98	98	242.49	-.97	8.8170	5.4836	47.68	606.65	.005
127000	98	95	243.56	-1.01	8.6593	5.2343	72.06	607.98	.004
128000	98	97	244.61	-1.05	8.5085	4.9970	76.44	609.30	.004
129000	98	98	245.57	-1.09	8.3647	4.7733	80.79	610.50	.002
130000	98	98	246.51	-1.13	8.2272	4.5608	84.57	611.65	.002
131000	96	98	247.40	-1.17	8.0959	4.3596	87.31	612.76	.003
132000	94	98	248.28	-1.20	2.9702	4.1677	89.70	613.86	.004
133000	91	99	249.16	-1.21	2.8503	3.9854	91.16	614.94	.007
134000	87	98	250.03	-1.21	2.7354	3.8113	92.50	616.01	.007
135000	84	98	250.88	-1.23	2.6258	3.6462	92.68	617.06	.007
136000	82	98	251.73	-1.24	2.5206	3.4883	92.85	618.11	.007
137000	78	99	252.59	-1.24	2.4201	3.3378	92.78	619.17	.010
138000	69	73	253.42	-1.27	2.3239	3.1947	93.09	620.18	.016
139000	70	73	254.25	-1.29	2.2319	3.0582	95.53	621.19	.008
140000	77	80	255.07	-1.29	2.1438	2.9281	97.09	622.19	.016
141000	84	84	255.73	-1.25	2.0595	2.8056	95.10	623.00	.018
142000	86	84	256.18	-1.28	1.9786	2.6907	95.43	623.54	.011
143000	85	85	256.67	-1.27	1.9011	2.5804	94.39	624.14	.009
144000	79	84	257.12	-1.30	1.8267	2.4751	96.72	624.68	.013
145000	77	85	257.55	-1.34	1.7554	2.3744	97.32	625.21	.005
145500	78	87	258.00	-1.35	1.6870	2.2779	99.27	625.76	.003
147000	78	89	258.42	-1.39	1.6213	2.1858	103.88	626.26	.003
148000	77	90	258.82	-1.42	1.5584	2.0976	103.09	626.75	.004
149000	76	94	259.21	-1.46	1.4979	2.0132	107.93	627.22	.006
150000	74	98	259.59	-1.50	1.4399	1.9324	112.04	627.68	.011
151000	71	103	259.93	-1.56	1.3842	1.8553	116.44	628.09	.012
152000	71	105	260.26	-1.62	1.3304	1.7814	119.79	628.49	.004
153000	74	107	260.61	-1.64	1.2795	1.7104	122.05	628.92	.009
154000	78	108	260.92	-1.71	1.2302	1.6426	125.11	629.28	.014
155000	82	107	261.20	-1.78	1.1829	1.5777	130.77	629.62	.013
156000	85	107	261.49	-1.83	1.1374	1.5154	136.01	629.97	.009
157000	87	109	261.78	-1.87	1.0936	1.4556	139.51	630.32	.007
158000	90	108	262.00	-1.97	1.0519	1.3986	144.45	630.59	.008
159000	92	109	262.24	-2.05	1.0116	1.3439	146.75	630.87	.008
160000	95	107	262.44	-2.15	.9729	1.2915	152.59	631.11	.010
161000	98	101	262.97	-2.43	.9357	1.2396	157.99	631.76	.014
162000	101	93	264.22	-2.57	.9001	1.1908	163.38	633.26	.016
163000	103	85	265.61	-2.58	.8660	1.1356	164.94	634.92	.013
164000	107	79	266.93	-2.64	.8333	1.0876	170.10	636.49	.015
165000	114	74	268.15	-2.78	.8021	1.0426	172.43	637.94	.017

[illegible]									
167000	[illegible]	[illegible]	[illegible]	[illegible]	.7454	[illegible]	[illegible]	[illegible]	.014
168000	113	87	[illegible]	[illegible]	.7217	.0260	[illegible]	[illegible]	[illegible]
169000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
170000	134	83	265.62	-2.12	.6830	.8598	200.65	636.63	.014
171000	12	83	263.63	-2.28	.6373	.8248	199.52	632.67	.011
172000	120	87	263.[illegible]	-2.63	.6136	.8133	198.40	631.61	.017
173000	113	79	262.27	-2.54	.5902	.7940	196.19	630.68	.017
174000	107	79	261.90	-2.98	.5674	.7551	195.96	630.64	.018
175000	102	5	261.61	-3.01	.5449	.7270	201.38	630.73	.014
176000	98	7	261.35	-3.10	.5230	.6998	205.37	630.62	.014
177000	94	40	261.03	-3.10	.5045	.6731	208.54	630.43	.015
178000	87	36	260.46	-3.04	.4854	.6494	211.52	630.44	.013
179000	86	38	259.41	-2.94	.4667	.6268	214.95	627.46	.011
180000	82	101	257.97	-2.85	.4486	.6059	218.89	625.72	.007
181000	82	103	256.43	-3.09	.4343	.5858	222.01	623.65	.005
182000	82	105	254.93	-3.21	.4163	.5662	226.30	622.01	.003
183000	83	103	253.47	-3.30	.3980	.5470	229.64	620.23	.003
184000	85	103	251.93	-3.50	.3822	.5265	234.59	618.35	.008
185000	88	100	250.50	-3.62	.3670	.5104	238.74	616.59	.010
186000	91	97	249.09	-3.74	.3523	.4927	242.32	614.65	.010
187000	94	94	247.63	-3.93	.3381	.4757	245.24	613.05	.008
188000	96	90	246.23	-4.08	.3244	.4590	250.63	611.31	.007
189000	92	87	244.83	-4.24	.3112	.4428	255.46	609.58	.007
190000	90	83	243.43	-4.44	.2985	.4271	258.53	607.93	.009
191000	84	80	242.11	-4.86	.2862	.4118	264.85	606.18	.013
192000	79	80	999.99	0.00	999.9999	999.9999	271.54	999.99	.015
193000	72	85	999.99	0.00	999.9999	999.9999	277.08	999.99	.018
194000	68	93	999.99	0.00	999.9999	999.9999	284.76	999.99	.017
195000	65	103	999.99	0.00	999.9999	999.9999	293.98	999.99	.018
196000	67	114	999.99	0.00	999.9999	999.9999	302.34	999.99	.019
196840	68	125	999.99	0.00	999.9999	999.9999	310.24	999.99	.019

ROCK 3

ATTACHMENT 15

SAMPLE COPY OF CO-RAWINSONDE 250-METER INPUT

ROCK 3

```
030750  [illegible]
031000  [illegible]
031250  [illegible]
031500  [illegible]
031750  [illegible]
032000  [illegible]
032250   ?    023    [illegible]   999   000?24 999   9999 [illegible]        .000 0.00999
032500   ?    023    [illegible]   999   000412 999   9999 [illegible]        .000 0.00999
032750   ?    024    [illegible]   999   000551 999   9999 [illegible]        .000 0.00999
033000   ?    024    [illegible]   999   000522 999   9999 [illegible]        .001 0.00999
033250   ?    024    [illegible]   999   000702 999   9999 00117[illegible]   .001 0.00999
033500   ?    024    352           999   000764 999   9999 0011[illegible]    .001 0.00999
033750   ?    025    371           999   000737 999   9999 0010540020309  .003 0.00999
034000   ?    025    379           999   000711 999   9999 0010130020308  .003 0.00999
034250  091   026    372           999   000686 999   9999 0010150020308  .004 0.00999
034500   ?    027    371           999   000662 999   9999 0009740020308  .005 0.00999
034750   ?    029    365           999   000639 999   9999 0009420020309  .005 0.00999
035000  093   030    358           999   000617 999   9999 0009050020309  .004 0.00999
035250  093   031    358           999   000595 999   9999 0008730020309  .003 0.00999
035500  094   031    351           999   000574 999   9999 0008420020309  .001 0.00999
035750  999   999    354           999   000554 999   9999 0008120020310  .999 0.00999
036000  999   999    348           999   000535 999   9999 0007820020310  .999 0.00999
036250  999   999    341           999   000516 999   9999 0007530020310  .999 0.00999
TERMINATION       118129 GEOPFT  36004 GEOPM    5.2 MAS                 -   03109
TROPOPAUSE    15147  GEOMM  129.66 MB  -71.3 C   99.9 C    SUN              9
                                MANDATORY LEVELS                        -   9
GEOPM     DIR  MPS  TEMP     DPT     PRESS   RH                             9
000158    335  002  290      253     10000   091                           !
000515    346  003  274      236     09500   080                           !
001095    013  005  242      194     09000   075                           !
001594    029  006  209      162     08500   074                           !
002117    042  005  190      013     08000   033                           !
002659    041  004  161      020     07500   028                           !
003250    033  004  119      09P     07000   021                           !
003865    027  004  071      07N     06500   035                           !
004518    029  002  031      08P     06000   041                           !
005216    333  001  02K      141     05500   042                           !
005968    193  004  050      21M     05000   031                           !
006779    154  003  130      211     04500   053                           !
007665    145  005  191      36J     04000   017                           !
008646    159  009  26K      43J     03500   019                           !
009741    167  011  340      50J     03000   019                           !
010965    151  009  45K      57P     02500   022                           !
012437    154  007  559      66P     02000   026                           !
013274    141  011  60R      999     01750   999                           !
014216    153  011  65N      999     01500   999                           !
015307    151  007  66J      999     01250   999                           !
016533    095  008  690      999     01000   999                           !
017975    070  010  65P      999     00800   999                           !
018791    041  013  530      999     00700   999                           !
019735    073  015  62M      999     00600   999                           !
020874    092  016  58P      999     00500   999                           !
022247    047  015  55P      999     00400   999                           !
024125    055  016  540      999     00300   999                           !
025365    055  019  510      999     00250   999                           !
026774    065  022  450      999     00200   999                           !
028692    092  022  44J      999     00150   999                           !
031429    093  023  411      999     00100   999                           !
033862    090  026  35K      999     00070   999                           !
                                SIGNIFICANT LEVELS                      -   9
GEOMM     DIR  MPS  TEMP     DPT      PRESS   IR  RH                        9
000005    000  000   274     262     101729  403 093                       !
000476    330  003   244     246     096511  377 081                       !
000965    003  004   245     221     091337  350 086                       !
001214    017  00?   240     170     08?603  314 065                       !
001706    032  00?   2??     1??     0?3522  296 072                       !
```

ATTACHMENT 16

PROGRAM LISTING

```
      PROGRAM ROCK(INPUT=65,OUTPUT=65,TAPE1=512,TAPE2=512,TAPE5=65,
     C TAPE6=65,TAPE7=65,TAPE8=OUTPUT,TAPE9=65,TAPE10=65,
     C TAPE16=INPUT,TAPE22=65,TAPE60=65,TAPE61=66,TAPE62=65)
C---------
      COMMON MAXALT,HHL,PHL,T3L,PE,PC,CON1,CON2,HSP,XIP,YIP,ITEST,NM,NO,
     +NY,NT,IND,NS,IX,IA,IB,IC,JD,NOTEMP,NORS,IN(9),INX(10),IPOCK
      COMMON GRAT,ZAT,IAL,IKT,IMR,IEW,ICW,IND1,IDM
      COMMON/DATA/ATC(51),BTC(51),CTC(51),DTC(51),CTD(51)
      COMMON/DATA5/MO(12),NST(12),NRC(2),NTA(3)
      COMMON/PRES/PL(35)
      DIMENSION MAXALTS(3)
C---------
C     TAPE1     SCRATCH FILE (UNFORMATED)
C     TAPE2     SCRATCH FILE (UNFORMATED & FORMATED)
C     TAPE3     SCRATCH FILE (UNFORMATED)
C     TAPE5     INPUT - POCKET TEMPERATURE DATA
C     TAPE6     INPUT - CORAWINSONDE
C     TAPE7     INPUT - ROCKET TRACKING DATA
C     TAPE8     OUTPUT - TERMINAL
C     TAPE9     OUTPUT - CODE
C     TAPE10    OUTPUT - CARDS
C     TAPE16    INPUT - TERMINAL
C     TAPE61    OUTPUT - PRINTER
C     TAPE62    OUTPUT - HAMDATA
C---------
C---- LOG OF MANDATORY PRESSURES
      DATA PL /            1.69897,  1.47712,  1.30102, 1.,
     C          .84509,   .69897,   .47712,   .30102, 0.,
     C        - .15490, - .30102, - .39794, - .52287, - .69897, -1.,
     C        -1.15490, -1.30102,           -1.52287, -1.69897, -2.,
     C        -2.15490, -2.30102,           -2.52287, -2.69897, -3.,
     C        -3.15490, -3.30102,           -3.52287, -3.69897, -4.,
     C        -4.15490, -4.30102,           -4.52287, -4.69897, -5./
      DATA  MO/4HJAN ,4HFEB ,4HMAR ,4HAPR ,4HMAY ,4HJUN ,4HJUL ,4HAUG ,
     C 4HSEP ,4HOCT ,4HNOV ,4HDEC /
      DATA NST(1),NST(2),NST(3)/10HCAPE CANAV,10HERAL AFS,F,2HL./
      DATA NST(4),NST(5),NST(6)/10HANTIGUA AF,10HS, W. I.  ,1H /
      DATA NST(7),NST(8),NST(9)/10HASCENSION ,10HAAFB, SAD ,1H /
      DATA NRC/10HLOKI      ,10HSUPER LOKI/
      DATA NTA/1,9,12/
      DATA ATC/.000465,.000465,.000464,.000464,.000463,.000462,.000461,
     C         .000459,.000457,.000455,.000452,.000450,.000448,.000446,
     C         .000444,.000443,.000442,.000441,.000440,.000440,.000439,
     C         .000439,.000439,.000439,.000440,.000441,.000441,.000442,
     C         .000442,.000443,.000443,.000444,.000444,.000445,.000445,
     C         .000446,.000446,.000447,.000447,.000448,.000449,.000449,
     C         .000450,.000450,.000451,.000452,.000452,.000452,.000453,
     C         .000454,.000455/
      DATA BTC/12.77,10.60,08.92,07.70,06.69,05.93,05.27,04.72,04.27,
     C         03.84,03.51,03.23,02.95,02.72,02.51,2.342,2.184,2.053,
     C         1.935,1.828,1.728,1.627,1.545,1.469,1.393,1.330,1.271,
     C         1.212,1.160,1.111,1.065,1.019,0.978,0.940,0.903,0.868,
     C         0.837,0.804,0.776,0.749,0.724,0.700,0.677,0.656,0.635,
     C         0.616,0.597,0.580,0.565,0.550,0.535/
      DATA CTC/23.20,18.40,15.00,12.50,10.40,08.94,07.70,06.69,05.87,
     C         05.13,04.57,04.10,03.65,03.29,02.98,02.73,02.51,2.33,
     C         02.17,02.03,01.90,01.77,01.67,01.57,01.46,01.40,01.33,
```

```
      C          01.26,01.20,01.14,01.09,01.03,0.985,0.943,0.897,0.856,
      C          0.822,0.795,0.768,0.722,0.694,0.665,0.640,0.615,0.593,
      C          0.572,0.551,0.533,0.514,0.502,0.487/
       DATA CTD/07.5E,06.04,04.93,04.13,03.48,03.00,02.59,02.26,02.00,
      C          01.75,01.57,01.42,01.27,01.15,01.04,0.956,0.880,0.820,
      C          0.768,0.718,0.673,0.629,0.592,0.559,0.52E,0.500,0.476,
      C          0.452,0.430,0.410,0.392,0.372,0.355,0.341,0.323,0.311,
      C          0.296,0.285,0.274,0.263,0.253,0.243,0.235,0.225,0.218,
      C          0.210,0.203,0.197,0.191,0.185,0.180/
       DATA DTC/18.51E-10,14.63E-10,11.63E-10,09.20E-10,08.18E-10,
      C          06.98E-10,05.98E-10,05.17E-10,04.53E-10,03.93E-10,
      C          03.49E-10,03.12E-10,02.78E-10,02.49E-10,02.24E-10,
      C          02.05E-10,01.87E-10,01.74E-10,01.62E-10,01.51E-10,
      C          01.41E-10,01.31E-10,01.23E-10,01.16E-10,01.09E-10,
      C          01.03E-10,09.76E-11,09.24E-11,08.79E-11,08.35E-11,
      C          07.95E-11,07.53E-11,07.18E-11,06.85E-11,06.52E-11,
      C          06.22E-11,05.96E-11,05.68E-11,05.44E-11,05.22E-11,
      C          05.00E-11,04.79E-11,04.60E-11,04.42E-11,04.25E-11,
      C          04.09E-11,03.94E-11,03.81E-11,03.69E-11,03.58E-11,
      C          03.47E-11/
C---------
      DATA NAME/"ROCK3     "/
      CALL ID(NAME)
C---------
      REWIND 61
      ITR=16
      IRDR=7
      ITEMP=5
      NIGHT=0
      RE=6371229.315
      PC=67.552
      WRITE(8,4)
110   READ(ITR,5) I
      IF (I.NE.R"Y".AND.I.NE.R"N") GOTO 110
      IF (I.EQ.R"Y") NIGHT=1
      WRITE(8,6)
120   READ(ITR,5) I
      IF (I.NE.R"Y".AND.I.NE.R"N") GOTO 120
      IF (I.EQ.R"Y") READ(IRDR,7)
      READ(ITEMP,1) ITEST
      READ(ITEMP,2)NS,NM,ND,NY,NT,IND,IND1,IROCK,IA1,IKT,IMR,IEW,ICW
      IF(NS.NE.99) GO TO 100
      READ(IRDR,3) (NST(I),I=10,12)
      IX=10
100   CALL GRAVITY
      NY=NY+1900
C---------SET UP MOTOR TYPE
      IA=IND
      IF(IND.EQ.6) IA=2
C---------SET UP TYPE OF SONDE
      IF(NS.EQ.1) IX=1
      IF(NS.EQ.9) IX=4
      IF(NS.EQ.12) IX=7
      NS=IX+2
C---------
      CALL CHKOUT
      CALL TMPMERG
```

```
115                CALL INITMP
116                CALL MIDIST(MAXALT)
117                CALL RAMDTC(NIGHT)
118                CALL COMPSW
119                CALL TWORM
120                CALL PRESCOM
121                CALL ONEKILO(MAXALTS)
122                CALL PLOTCH
123                CALL PUTOUT(MAXALTS)
124                CALL ETERRM
125                CALL ROCOR
126            C---------
127                ENDFILE 61
128                CALL ENDRUN
129                STOP
130            C---------
131            1   FORMAT(I5)
132            2   FORMAT(I2,3I3,I5,2I2,A8,3I1,I2,I1)
133            3   FORMAT(3A10)
134            4   FORMAT("IS THIS A NIGHT RUN ?  YES/NO")
135            5   FORMAT(A1)
136            6   FORMAT("IS THIS A MATTY RUN ?  YES/NO")
137            7   FORMAT(1X)
138            C---------
139                END
```

```
      SUBROUTINE SIMQ(A,B,N)
      DIMENSION A(1), B(1)
      JJ = -N
      DO 65 J = 1,N
      JY = J + 1
      JJ = JJ + N + 1
      BIGA = 0
      IT = JJ - J
      DO 30 I = J , N
      IJ = IT + I
      IF (ABS(BIGA).GE.ABS(A(IJ))) GOTO 30
      BIGA = A(IJ)
      IMAX = I
   30 CONTINUE
      IF (ABS(BIGA).EQ.0.0) RETURN
      I1 = J + N*(J-2)
      IT = IMAX-J
      DO 50 K = J,N
      I1 = I1 + N
      I2 = I1 + IT
      SAVE = A(I1)
      A(I1) = A(I2)
      A(I2) = SAVE
   50 A(I1) = A(I1)/BIGA
      SAVE = B(IMAX)
      B(IMAX) = B(J)
      B(J) = SAVE/BIGA
      IF (J.EQ.N) GOTO 70
      IQS = N*(J-1)
      DO 65 IX = JY,N
      IXJ = IQS + IX
      IT = J - IX
      DO 60 JX = JY,N
      IXJX = N*(JX-1)+IX
      JJX = IXJX + IT
   60 A(IXJX) = A(IXJX) - (A(IXJ)*A(JJX))
   65 B(IX) = B(IX) - (B(J)*A(IXJ))
   70 NY = N-1
      IT = N*N
      DO 80 J = 1,NY
      IA = IT-J
      IB = N-J
      IC = N
      DO 80 K = 1,J
      B(IB) = B(IB)-A(IA)*B(IC)
      IA = IA -N
   80 IC = IC-1
      RETURN
      END
```

```
      SUBROUTINE OUTPUT(HS,X,Y,T,UT,P,FS)
      COMMON MAXALT,HBL,PBL,TBL,PS,PC,CON1,CON2,HSP,XIP,YIP,ITEST,NM,ND,
     1 NY,NT,IHD,NS,IX,IA,IP,IC,TD,NOTEMP,NOPS,IN(24),INX(14),IROCK
      COMMON GRAT,ZAT,IAL,IMT,IMP,IEW,ICW,IND1,IDA
C---------
      IRND(A1)=IFIX(SIGN((ABS(A1)+.5),A1))
C---------
      DIR=WDIR(X,Y)
      SPD=WSPD(X,Y)
      IF (SPD.NE.999.) SPD=SPD*CON1
      IF (T.LE.999.) GOTO 100
      T=999.99
      UT=999.99
  100 TC=T-UT
      IF (P.LE.999.) GOTO 103
      PS=DS=999.9999
      GO TO 104
  103 PS=10**P
  104 IF (T.LE.999.) GOTO 106
      DS=999.9999
      VS=999.99
      GO TO 110
  106 IF (P.LE.999.) GOTO 108
      DS=999.9999
      GO TO 109
  108 DS=(PS/T)*348.38
  109 VS=(331.45*SQRT(T/273.15))*CON1
  110 IF (FS.GE.-999.) GOTO 117
      FX=999.99
      GO TO 118
  117 FX=-FS*CON2
  118 IF (X.LE.999..AND.XIP.LE.999.) GOTO 112
      WS=.999
      GO TO 113
  112 WS=(SQRT(((X-XIP)*(X-XIP))+((Y-YIP)*(Y-YIP)))*CON2)/(HS-HSP)
  113 IF(HBL.EQ.HS) PS=DS=999.9999
      IF(HS.LT.20000.0)RETURN
      IF(HS.LT.65616.66.AND.CON1.NE.1.) RETURN
      WRITE(2,1) IRND(HS),IRND(DIR),IRND(SPD),T,TC,PS,DS,FX,VS,WS
    1 FORMAT(1H ,I7,2I6,2F8.2,2F9.4,2F6.2,F6.3,4X)
      HSP=HS
      XIP=X
      YIP=Y
      RETURN
      END
```

```
      FUNCTION WDIR(X,Y)
C------/D/ UNCORRECTED WIND DIRECTION (DEGREES)
C-----/WDIR/ CORRECTED WIND DIRECTION (DEGREES)
C----/X/ X WIND COMPONENT
C----/Y/ Y WIND COMPONENT
C------
      IF(X.LE.998.) GO TO 100
      WDIR= 999.0
      RETURN
C------
  100 IF(X.NE.0.) GO TO 110
      IF(Y.GE.0.) WDIR= 360.
      IF(Y.LT.0.) WDIR= 180.
      RETURN
C------
  110 D=ATAN(Y/X)*57.29578
      IF(X.GT.0.)WDIR=90.-D
      IF(X.LT.0.)WDIR=270.-D
      IF(WDIR.LT.0.5)WDIR=360.
      RETURN
C--------
      ENTRY WSPD
C--------
      IF(X.LE.998.) GO TO 120
      WDIR=999.0
      RETURN
  120 WDIR=SQRT(X*X+Y*Y)
      RETURN
      END
```

```
      FUNCTION VALUE(R,A,B)
C-----INTERPOLATES A VALUE BY RATIO (R) BETWEEN LEVELS A AND B
      IF(A.GT.999..OR.B.GT.999.)GO TO 101
      GO TO 100
  101 VALUE=999.99
      RETURN
  100 IF(A.LT.-999..OR.B.LT.-999.)GO TO 102
      GO TO 103
  102 VALUE=-999.99
      RETURN
  103 VALUE=R*(A-B)+B
      RETURN
      END
```

```
      1                SUBROUTINE GRAVITY
      2                COMMON MAXALT,HHI,PRL,TRL,PI,PC,CON1,CON2,HSP,XIP,YIP,ITEST,NM,ND,
      3               CNX,NT,IND,KS,IX,IA,IB,IC,IE,IOL,MP,MPOS,IN(60),INX(15),IPOCK
      4                COMMON GRAT,ZAT,IA1,IKT,IMP,IE4,IC#,IND1,IOP
      5            C*****COMPUTES A RELATIVE ACCELERATION OF GRAVITY FACTOR FOR EACH STA.
      6                ZAT = RLAT = RMIN = RLON = 0.0
      7                IRDR=7
      8                IF(NS .EQ. 1) GO TO 1
      9                GO TO 2
     10              1 ZAT = 5.
     11                RLAT = 28.29
     12                GO TO 16
     13              2 IF(NS .EQ. 9) GO TO 3
     14                GO TO 4
     15              3 ZAT = 4.
     16                RLAT = 17.7
     17                GO TO 16
     18              4 IF(NS .EQ. 12) GO TO 6
     19                GO TO 5
     20              6 ZAT = 79.
     21                RLAT = 7.58
     22                GO TO 16
     23              5 IF(NS .EQ. 99) GO TO 9
     24                GO TO 7
     25            9     READ(IRDR,10) ZAT,RLAT,RMIN,RLON
     26               10 FORMAT(F3.0,1X,2F2.0,F6.0)
     27                GO TO 16
     28            7     NS = 2
     29                RETURN
     30            16    RLAT=2*(RLAT/57.29578)
     31                  GRAT = 1-(.0026373*(COS(RLAT2)))+(.0000059*(COS(RLAT))**2)
     32                  RETURN
     33                  END
```

```
      SUBROUTINE CHKOUT
C-----DOES T,A,E,R, AND IF CHARACTER CHECKOUT ON PRINTER
C-----AND WRITES T,X,Y, AND Z ON DRIVE 1 IN BINARY
      COMMON MAXALT,TBL,PPL,TAL,PE,PC,CDN1,CDN2,ASP,EIP,YIP,ITEST,NM,ND,
     1NY,NT,IND,NS,IX,IA,IB,IC,ID,NOTEMP,NOPS,IN(64),INX(16),IROCK
      COMMON GPAT,ZAT,IA1,IKT,IMP,IEW,ICW,IND1,IDN
      COMMON/DATAS/MO(12),NST(16),NRC(2),NTA(3)
      COMMON/AY3P/T,A,E,R,IRZ(27),JTS,TIM,ITS38,AL,EL,X,Y,Z
      IRDR=7
      TIM=0.0
      ITS38=0
      CALL DATE(TODAY)
      CALL TIME(CLOCK)
      WRITE(61,10)ITEST,TODAY,CLOCK
      WRITE(61,8)(NST(I),I=IX,NS)
      WRITE(61,9)NT,ND,MO(NM),NY
      WRITE(61,11)NRC(IA),IROCK
      WRITE(61,3)
      DT=DA=DE=DR=DZ=0.0
C-----READ FIRST CARD
      READ(IRDR,4) ITD
      BACKSPACE IRDR
      IF(IGETC(ITD,6).EQ.R".") GOTO 103
      ITS38=1
C     IF 38 CHARACTER DATA ITS38=1 ELSE ITS38=0
C     IF EOF ENCOUNTERED IN RD36CH JTS=1 ELSE JTS=0
  103 DO 112 I=1,1000
      IF (ITS38.EQ.1) GOTO 105
      READ(IRDR,5,END=113) T,A,E,R
  105 CALL RD46CH
      IF (JTS.EQ.1) GOTO 113
      AL=A/57.29578
      EL=E/57.29578
      R=R*0.9144
      REZAT=RE+ZAT
      Z=SQRT(REZAT**2+R**2+2.0*REZAT*R*SIN(EL))-RE
      EC=EL+(Z*(COS(EL)/SIN(EL)))/(2.2*RE))
      X=R*COS(EC)*SIN(AL)
      Y=R*COS(EC)*COS(AL)
      IF(I.EQ.1)GO TO 111
C-----COMPUTE DELTAS
      DT=T-T1
      DX=60./DT
      DZ=(Z-Z1)*DX
      DE=(E-E1)*DX
      DA=(A-A1)*DX
      DR=(R-R1)*DX
  111 WRITE(61,7)T,A,E,R,Z,(IRZ(J),J=2,4),DT,DA,DE,DR,DZ
C-----PRECESS VALUES
      T1=T
      A1=A
      E1=E
      R1=R
      Z1=Z
C-----WRITE TEMP,TIME,X,Y,AND Z ON TAPE
      WRITE(1) T,X,Y,Z
  112 CONTINUE
```

```
      -43   REWIND 1
            REWIND 2
            REWIND 7
            RETURN
      C---------
      5     FORMAT(3X,"TIME SEC   AZIMUTH  ELEVATION     RNG MTS    HGT MTS"
           C ,"  HR MIN SEC",6X,"TIME      AZIMUTH   ELEVATION",7X,"RANGE     "
           C ,"ALTITUDE",/)
      6     FORMAT(A10)
      7     FORMAT(F5.0,3X,2F7.3,F7.0)
      8     FORMAT(1X,F10.2,2F10.3,2F12.2,3I4,5F12.2)
      9     FORMAT(1X,3A10)
      9     FORMAT(1X,I4.4,"Z  ",I2,1X,A4,I4,6X,"RADAR TRACKING DATA",/)
      10    FORMAT("1TEST NUMBER",6X,I5,50X,"RUN DATE",A10,"   RUN TIME ",A10)
      11    FORMAT(1X,A10,5X,"ROCKETSONDE",5X,A10,60X,"DIFFERENCE/MINUTE")
      C---------
            END
```

```
      SUBROUTINE R045CH
      COMMON MAXALT,HAL,PRL,TAL,PS,PC,CON1,CON2,HSP,XIP,YIP,ITEST,NM,ND,
     1XY,MT,IND,NS,IX,IA,IH,IC,ID,NOTEMP,NCRS,IX(4),IXR(14),IROCK
      COMMON/XY3H/T,A,E,W,IRZ(27),JT,TIM,ITS32,AL,EL,X,Y,Z
      DATA JTS/0/
C
      IF (ITS32.NE.1) GO TO 20
    1 T=A=E=P=0.0
      READ(7,10,END=30) (IRZ(I),I=1,27)
      IF(IRZ(1).EQ.1)GO TO 1
C-----TIME TO SECONDS
      T=(60*IRZ(2)+IRZ(3))*60+IRZ(4)
      IF(JX.EQ.1)GO TO 13
      IF(T.LT.TIM)GO TO 11
      GO TO 12
   11 JX=1
   13 T=T+86400.
      GO TO 15
   12 TIM=T
   15 CONTINUE
C-----ELEVATION AND AZIMUTH ANGLES
      IF(NS.EQ.9)GO TO 8
      DO 5 I=1,7
      J=12-I
      K=19-I
      A=.125*A+IRZ(J)
    5 E=.125*E+IRZ(K)
      A=180.*A
      E=180.*E
C-----RANGE
      DO 6 I=1,9
      J=18+I
    6 P=P.0*P+IRZ(J)
      R=P*1.953125
      RETURN
C---------
    8 DO 25 I=1,6
      J=12-I
      K=19-I
      A=.125*A+IRZ(J)
   25 E=.125*E+IRZ(K)
      A=90.*A
      E=90.*E
      DO 26 I=1,9
      J=18+I
   26 P=6.0*P+IRZ(J)
      RETURN
C-----CONVERT SECS TO HRS ETC. FOR T.A.E.P. DATA
   20 II=T/3600.
      AA=II*3600
      AA=T-AA
      JJ=AA/60.
      RR=JJ*60
      KK=AA-RR
      IRZ(2)=II
      IRZ(3)=JJ
      IRZ(4)=KK
```

```
      SUBROUTINE TIMBRG
C---------
      COMMON MAXALT,IPL,PPL,TBL,PC,PCPL,PCM2,HSP,YI2,YI3,ITEST,NM,NO,
     1 NY,NT,IND,NS,IX,I4,IA,IC,ID,NOTEMP,PRES,IN(82),INX(16),IBUCK
      DIMENSION RRES(24),RRAT(24)
      DIMENSION TEMP(60),GT(60)
      DATA RRES/24*0.0/
      DATA RRAT/24*0.0/
C---------
      IT=1
      NOTEMP=0
C---------CONVERT LAUNCH TIME
      TA=NT
      TB=NT/100
      TC=TB*100.
      TD=TA-TC
      BTIME=TB*3600.+TD*60.
C---------
      READ(IT,1,END=400) IN
      IF (IGETC(IN,15).EQ.R" ") GOTO 300
      IF (IGETC(IN,1).NE.R"*") GOTO 200
C---------STEINHART EQUATION
      DECODE(26,2,IN) A,B,C
      DO 110 I=1,24
      READ(IT,11 IN
      IF (IGETC(IN,1).EQ.R"9".AND.IGETC(IN,2).EQ.R"9") GOTO 120
      DECODE(17,6,IN) RRES(I),RRAT(I)
  110 CONTINUE
  120 DO 100 I=1,60
      READ(IT,3,END=500) P,GT(I)
      GT(I)=GT(I)+BTIME
      R=P/950.
      DO 130 J=1,24
      IF (R.GT.RRAT(J).OR.R.LT.RRAT(J+1)) GOTO 130
      RAT=(RRAT(J)-R)/(RRAT(J)-RRAT(J+1))
      P=RRES(J)-(RRES(J)-PRES(J+1))*RAT
      GOTO 140
  130 CONTINUE
  140 TEMP(I)=1/(A+(B*R)+(C*R**3))
  100 CONTINUE
      GOTO 500
C---------LAYTON CLARK EQUATION
  200 DECODE(26,4,IN) A,B,C
      DO 210 I=1,24
      READ(IT,1) IN
      IF (IGETC(IN,1).EQ.R"9".AND.IGETC(IN,2).EQ.R"9") GOTO 220
      DECODE(17,6,IN) RRES(I),RRAT(I)
  210 CONTINUE
  220 DO 230 I=1,60
      READ(IT,3,END=500) P,GT(I)
      GT(I)=GT(I)+BTIME
      R=P/950.
      DO 240 J=1,24
      IF (R.GT.RRAT(J).OR.R.LT.RRAT(J+1)) GOTO 240
      RAT=(RRAT(J)-R)/(RRAT(J)-RRAT(J+1))
      P=RRES(J)-(RRES(J)-RRES(J+1))*RAT
      GOTO 250
```

```
                      IF (J.EQ.0) GOTO 530
                      IF (G.GE.GT(J).AND.G.LT.GT(J+1)) THEN
                      RAT=(G-GT(J))/(GT(J+1)-GT(J))
                      T=TEMP(J)-(TEMP(J)-TEMP(J+1))*RAT
                      WRITE(2) G,T,X,Y,Z
                      GOTO 510
                      ELSE IF (G.GE.GT(J+1)) THEN
                      J=J+1
                      GOTO 520
                      END IF
                530   T=999.9
                      WRITE(2) G,T,X,Y,Z
                      GOTO 510
                C---------
                990   ENDFILE 2
                      REWIND 1
                      REWIND 2
                      RETURN
                C---------
               100    FORMAT(4A10)
               101    FORMAT(I5,2E9.5)
               102    FORMAT(F3.0,F5.0)
               103    FORMAT(F5.5,2F9.5)
               104    FORMAT(F4.1,F5.0)
               105    FORMAT(F3.7,F9.7)
               106    C---------
               107          END
```

```
      SUBROUTINE INTPTMP
C-----SCANS TEMPERATURES LOOKING FOR MISSING DATA OR LOSS
C-----THAT IS TO BE INTERPOLATED
C
C-----START AT TOP LOOKING FOR FIRST GOOD TEMP
   97 MSW=1
  100 READ(2,END=99)G,T,X,Y,Z
      GOTO 101
   99 IF(MSW.LE.1) GO TO 98
   98 BACKSPACE 2
      BACKSPACE 2
      READ(2)G,T,X,Y,Z
      IF(G.EQ.ZHG)GO TO 97
      GO TO 98
   98 ENDFILE 1
      REWIND 1
      REWIND 2
      RETURN
  101 IF(MSW.GT.1) GO TO 104
      IF(T.EQ.999.9) GO TO 106
  107 MSW=2
  108 ZHT=T
      ZHG=G
      ZHZ=Z
  106 WRITE(1)G,T,X,Y,Z
      GO TO 100
  104 IF(MSW.GT.2) GO TO 105
      IF(T.EQ.999.9) GO TO 109
      GO TO 108
  109 MSW=3
      GO TO 100
  105 IF(T.EQ.999.9)GO TO 100
      ZLT=T
      ZLG=G
      ZLZ=Z
      IF((ZHZ-ZLZ).GT.3000.)GO TO 98
  111 BACKSPACE 2
      BACKSPACE 2
      READ(2)G,T,X,Y,Z
      IF(G.EQ.ZHG)GO TO 112
      GO TO 111
  112 READ(2)G,T,X,Y,Z
      IF(G.EQ.ZLG)GO TO 107
      RAT=(ZHG-G)/(ZHG-ZLG)
      T=ZHT-RAT*(ZHT-ZLT)
      WRITE(1)G,T,X,Y,Z
      GO TO 112
      END
```

```
      SUBROUTINE BALLTC(NIGHT)
C-----DOES BALLISTIC MOTION AND TEMPERATURE CORRECTION
      COMMON MAXALT,HBL,PBL,TBL,PL,RC,COM1,COM2,HSP,YIP,YIP,ITEST,NP,NO,
     1NY,NT,IND,NS,IX,IA,IR,IC,ID,ROGTEMP,NORS,IN(30),INX(14),IROCK
      COMMON GRAT,ZAT,IA1,IKT,IMR,IEW,ICW,IND),IDN
      COMMON/DATA/ATC(51),BTC(51),CTC(51),DTC(51),CTD(51)
      READ(2) H1,Z1,X1,Y1,T1,G1
      READ(2) H2,Z2,X2,Y2,T2,G2
100   READ(2,END=101) H3,Z3,X3,Y3,T3,G3
      T=999.9
      DT=G3-G1
      GR=GRAT*9.80616
      D=((Z3-Z1)/DT)+GR
      VX = X2 -( (Z2*((X3-X1) / DT )) / D)
      VY = Y2 -( (Z2*((Y3-Y1) / DT )) / D)
      XC=VX-X2
      YC=VY-Y2
      V=SQRT(Z2**2+XC**2+YC**2)
      IF (H2.LT.20000.) GOTO 103
      IF(IND.EQ.2.OR.IND.EQ.3) GO TO 103
      IF((T1.EQ.999.9.OR.T2.EQ.999.9).OR.T3.EQ.999.9) GO TO 108
      T=T1-IFIX(H2/1000.)
      IF(H2.GE.70000.) I=1
      T4=T2**4
      AA=ATC(I)*(V*V)
      AB = BTC(I) * ((T3-T1)/DT)
      AC = CTC(I)
      IF (NIGHT.EQ.1) AC=CTD(I)
      AD=DTC(I)*T4
      T = T2 - AA + AB - AC + AD
      GO TO 108
103   T=T2
108   WRITE(1)H2,Z2,VX,VY,X2,Y2,T,T2
      H2=H3
      Z1=Z2
      Z2=Z3
      X1=X2
      X2=X3
      Y1=Y2
      Y2=Y3
      T1=T2
      T2 = T3
      G1=G2
      G2=G3
      GO TO 100
101   ENDFILE 1
      REWIND 1
      REWIND 2
      RETURN
      END
```

```
      SUBROUTINE COMPSH
      COMMON MAXSLT,MU,[illegible],TM,FC,FC,[illegible],COMP2,USP,XIP,YIP,ITEST,NM,NJ,
     *NS,NT,INTP,[illegible],IX,IA,IH,[illegible],IC,NUTEMP,NCRS,IN(5),INX(18),IROCK
      COMMON QHAT,ZAT,IAL,INT,IMR,IMW,ICW,INDI,ION
      COMMON/DATAS/MO(12),NST(12),NRC(2),NTA(3)
      DIMENSION HEIGHT(41),RSTMP(41),TMPDIF(41),PPRS(41),R(41)
      DATA HEIGHT,TMPDIF/82*0.0/
C----------
      IF (NUTEMP.EQ.1) GOTO 999
      M250=6
      NCRS=1
      READ(M250,10,END=999) INX(1),INX(2)
      NCRS=0
      READ(M250,1) (INX(I),I=3,18)
      WRITE(61,4)
      WRITE(61,5)ITEST,NRC(IA),IROCK
      WRITE(61,6) (NST(I),I=IX,NS),(INX(I),I=3,10)
      WRITE(61,7)NT,ND,MO(NM),NY,(INX(I),I=11,18)
      WRITE(61,8)
C----------
      DO 100 I=1,41
105   READ(M250,2) IN
      IF (IN(1).EQ."TERMINATIO") GOTO 110
      DECODE(41,3,IN) HGT,TMP,ITEN,RPR
      IF (HGT.LT.20000.) GOTO 105
      HEIGHT(I)=HGT
      PPRS(I)=RPR
      IMUL=1
      IF (ITEN.EQ.O"66".OR.ITEN.LT.O"33") IMUL=-1
      IF (ITEN.LT.O"33") ITEN=ITEN-O"11"
      IF (ITEN.EQ.O"66") ITEN=0
      IF (ITEN.GE.O"33") ITEN=ITEN-O"33"
      RSTMP(I)=((TMP*10.+FLOAT(ITEN))*IMUL)/10.
100   CONTINUE
C----------
110   IF (I.LT.10) GOTO 999
      DO 120 I=1,1000
120   READ(1,END=130)
130   KIX=I-2
      BACKSPACE 1
      BACKSPACE 1
      READ(1) Z,H,VX,VY,UX,UY,T,UT
      J=1
      DO 140 I=1,KIX
      BACKSPACE 1
      BACKSPACE 1
      READ(1) Z1,H,VX,VY,UX,UY,T1,UT
      IF (T.GE.999..OR.T1.GE.999.) GOTO 131
132   IF (Z.LE.HEIGHT(J).AND.HEIGHT(J).LT.Z1) THEN
      RAT=(Z-HEIGHT(J))/(Z-Z1)
      R(J)=T-RAT*(T-T1)-273.15
      TMPDIF(J)=R(J)-RSTMP(J)
      WRITE(61,9) IFIX(HEIGHT(J)),R(J),RSTMP(J),TMPDIF(J)
      END IF
      IF (HEIGHT(J).GE.Z1) GOTO 131
      J=J+1
      IF (J.GT.41.OR.HEIGHT(J).EQ.0.0) GOTO 150
```

ROCK 3

```
                GOTO 132
  131           T=T1
                T=T1
  140           CONTINUE
                C---------
  150           K=1
                KK=9
  155           A=0
                DO 160 I=K,KK
                IF (HEIGHT(I).EQ.0.0) GOTO 999
  160           A=A+ABS(TMPDIF(I))
                A=A/9.
                IF (A.LE.2.5) THEN
                HBL=HEIGHT(K)
                TBL=RSTMP(K)+273.15
                PBL=PPRS(K)
                IH=((ERAT*(RE+HBL)/(RE+HBL))+5.)/10.
                IP=PBL*100.+.5
                IT=B(K)*10.-.5
                WRITE(8,12) IH,IP,IT
                REWIND 1
                RETURN
                END IF
                K=K+1
                KK=KK+1
                IF (KK.LE.41) GOTO 155
  999           HBL=PBL=TBL=999.9
                WRITE(8,11)
                REWIND 1
                RETURN
                C---------
                1     FORMAT(//8A4/8A4///)
                2     FORMAT(8A10)
                3     FORMAT(F6.0,14X,F2.0,F8.1,12X,F6.2)
                4     FORMAT("1",11X,"* * *  TEMPERATURE COMPARISON  * * *"//
               C        " ROCKETSONDE",24X,"RAWINSONDE"/)
                5     FORMAT(" TEST NBR ",I5/" ROCKET ",A10,2X,A10)
                6     FORMAT(" ",3A10,5X,8A4)
                7     FORMAT(" ",I4,"Z",I6,1X,A4,I4,17X,8A4//)
                8     FORMAT(" ALTITUDE",4X,"TEMPERATURE  DEGREES C"/
               C        "  METERS    ROCKET   RAWINSONDE   DIFFERENCE"/)
                9     FORMAT(" ",I7,F10.2,F11.2,F12.1)
                10    FORMAT(2A4)
                11    FORMAT("9999 9999-999")
                12    FORMAT(I4,I5,I4)
                C---------
                      END
```

```
                                                                    PAGE    1
                      REAL*8 TA,TB
                      DIMENSION XA(3,3),XB(3),X(9),Y(9,9)
                      DIMENSION YA(3,3),YB(3),Y(9),YC(9,9)
                      DIMENSION H(9),F(9),UX(9),UY(9),T(9),UT(9)
                      DO 10 I=1,4
                      READ(1) HA,FA,X(I),Y(I),UXA,UYA,TA,UTA
                   10 WRITE(2)HA,FA,X(I),Y(I),UXA,UYA,TA,UTA
                      DO 20 I=1,4
                   20 READ(1) H(I),F(I),X(I+4),Y(I+4),UX(I),UY(I),T(I),UT(I)
                   30 READ(1,END=150) H(5),F(5),X(9),Y(9),UX(5),UY(5),T(5),UT(5)
                      DO 50 I=1,9
                   50 IF(X(I).EQ.999.9) GO TO 100
                      DO 60 I=1,9
                   60 XC(I,1)=YC(I,1)=1.
                      DO 70 J=2,3
                      DO 70 I=1,9
                      XC(I,J)=XC(I,J-1) * I
                   70 YC(I,J)=YC(I,J-1) * I
                      DO 80 I=1,3
                      DO 80 J=1,3
                      XA(I,J)=YA(I,J)=0.
                      DO 80 K=1,9
                      XA(I,J)=XA(I,J)+XC(K,I)*XC(K,J)
                   80 YA(I,J)=YA(I,J)+YC(K,I)*YC(K,J)
                      DO 90 I=1,3
                      XB(I)=YB(I)=0.
                      DO 90 K=1,9
                      XB(I)=XB(I)+XC(K,I)*X(K)
                   90 YB(I)=YB(I)+YC(K,I)*Y(K)
                      CALL SIMQ(XA,XB,3)
                      CALL SIMQ(YA,YB,3)
                      SX=25.*XB(3)+5.*XB(2)+XB(1)
                      SY=25.*YB(3)+5.*YB(2)+YB(1)
                      GO TO 110
                  100 SX=SY=999.9
                  110 WRITE(2) H(1),F(1),SX,SY,UX(1),UY(1),T(1),UT(1)
                      DO 130 I=1,8
                      X(I)=X(I+1)
                  130 Y(I)=Y(I+1)
                      DO 140 I=1,4
                      J=I+1
                      H(I)=H(J)
                      F(I)=F(J)
                      UX(I)=UX(J)
                      UY(I)=UY(J)
                      T(I)=T(J)
                  140 UT(I)=UT(J)
                      GO TO 30
                  150 DO 160 I=1,4
                  160 WRITE(2)H(I),F(I),X(I),Y(I),UX(I),UY(I),T(I),UT(I)
                      ENDFILE 2
                      REWIND 1
                      REWIND 2
                      DO 200 I=1,1000
                      READ(2,END=201)
                  200 CONTINUE
                  201 I=I-1
```

```
      DO 202 J=1,I
      BACKSPACE 2
      BACKSPACE 2
      READ(2)A
  202 WRITE(1)A
      ENDFILE 1
      REWIND 1
      REWIND 2
      RETURN
      END
```

```
      1              SUBROUTINE PRESCOM
      2              COMMON MAXALT,HBL,PBL,TBL,RE,PC,GRAT,GMW2,HS2,XIM,YIM,IT,IL,NP,ND,
      3             1X,Y,T,UX,UY,HS,IX,IA,IR,IC,ID,HDTEMP,HDPS,TS(50),INX(2),IRICM
      4              COMMON GRAT,TAT,IAL,IKT,IMW,IPW,ICW,TMOL,TOK
      5              PPL=999.9
      6              KSW=0
      7              TBLSW=0
      8            100 READ(1)H,F,X,Y,UX,UY,T,UT
      9              HI=GRAT*((RE*H)/(RE+H))
     10              IF (HBL.LE.H) GOTO 10
     11              WRITE(2) H,X,Y,UX,UY,T,UT,PPL,F
     12              GO TO 100
     13             10 IF(HBL.EQ.H)GO TO 101
     14              IBLSW=1
     15              IF ((H-HBL).LE.3000.) GOTO 101
     16              KSW=1
     17              PBL=TBL=999.9
     18              F=-999.9
     19            101 IF(PBL.GT.99. )GO TO 109
     20              PPL=ALOG10(PBL)
     21              GO TO 110
     22            109 KSW=1
     23            110 TP=TBL
     24              HP=GRAT*((RE*HBL)/(RE+HBL))
     25              WRITE(2) HBL,X,Y,UX,UY,T,UT,PPL,F
     26              IF(IBLSW.EQ.1)BACKSPACE 1
     27          C---------
     28            120 READ(1,END=99)H,F,X,Y,UX,UY,T,UT
     29              PL=999.9
     30              IF(KSW.EQ.1)GO TO 107
     31              HI=GRAT*((RE*H)/(RE+H))
     32              IF (T.NE.999.9.AND.TP.NE.999.9) GOTO 105
     33              KSW=1
     34              GO TO 107
     35            105 TV=(T+TP)/2.
     36              PL=PPL-((HI-HP)/(PC*TV))
     37              HP=HI
     38              PPL=PL
     39              TP=T
     40            107 WRITE(2) H,X,Y,UX,UY,T,UT,PL,F
     41              GOTO 106
     42            99    ENDFILE 2
     43              REWIND 1
     44              REWIND 2
     45              CALL INT
     46              RETURN
     47              END
```

```
      1                SUBROUTINE ONEKILO(MAXALTS)
      2                COMMON MAXALT,HRI,PPL,TRL,RF,RC,CON1,CON2,HSP,YIP,YTP,ITEST,NM,ND,
      3               1NY,ST,IHD,NS,IX,IA,IH,JC,IC,NHITEMP,NTRS,IN(24),JNX(1M),IPOCK
      4                COMMON CMAT,ZET,IAL,IKT,IM2,IEND,ICW,INDI,IDN
      5                COMMON/DATAS/MO(12),NST(12),NRC(2),NTA(3)
      6                DIMENSION MAXALTS(3)
      7                IMAX=6
      8                NSW=0
      9                CON1=CON2=1.
     10                HINT=1000.
     11              10 WRITE(2,7)ITEST
     12               7 FORMAT(16H TEST NUMBER    ,I5)
     13                WRITE(2,8)(NST(I),I=IX,NS)
     14              8 FORMAT(1H ,3A10,49X)
     15                WRITE(2,9)NT,ND,MO(NM),NY
     16               9 FORMAT(1H ,I4.4,3HZ  ,12,1X,A4,I4,61X,/)
     17                WRITE(2,18)NRC(IA),IPOCK
     18               18 FORMAT(1H ,A10,2X,A10,57X)
     19                WRITE(2,4)
     20                IMAX=IMAX+1
     21                IF(NSW.EQ.2)GO TO 114
     22                GO TO 115
     23              114 WRITE(2,6)
     24                GO TO 107
     25              115 WRITE(2,5)
     26              107 WRITE(2,2)
     27                NSW=NSW+1
     28                XIP=999.9
     29                1 READ(1)HA,XA,YA,UXA,UYA,TA,UTA,PA,FA
     30                IF(HA.LT.1.) GO TO 1
     31                HA=HA*CON2
     32                CALL OUTPUT(HA,XA,YA,TA,UTA,PA,FA)
     33                IH=HSP-HA
     34                HS=((IH/1000)*1000)+HINT
     35              109 IF(HS.GT.HA)GO TO 103
     36                HS=HS+HINT
     37                GO TO 109
     38              103 READ(1,END=99)HB,XB,YB,UXA,UYA,TB,UTB,PB,FB
     39                HB=HB*CON2
     40              106 IF(HS.EQ.HB)GO TO 101
     41                GO TO 102
     42              101 CALL OUTPUT(HS,XB,YB,TB,UTB,PB,FB)
     43                HS=HS+HINT
     44              105 HA=HB
     45                XA=XB
     46                YA=YB
     47                TA=TB
     48                UTA=UTB
     49                PA=PB
     50                FA=FB
     51                GO TO 103
     52              102 IF(HS.LT.HB)GO TO 104
     53                GO TO 105
     54              104 PAT=(HS-HP)/(HA-HB)
     55                X=VALUE(PAT,XA,XB)
     56                Y=VALUE(PAT,YA,YB)
     57                T=VALUE(PAT,TA,TB)
```

```
      HVALL=(HAT,UTA,UTH)
      PVALL=(HAT,PA,FA)
      EVALL=(HAT,FA,EH)
      CALL OUTPUT(HS,XA,YA,TA,UTA,PA,FA)
      HF=HS+HTAT
      GO TO 100
   99 HS=HA
      CALL OUTPUT(HS,XA,YA,TA,UTA,PA,FA)
      MAXALT=MAXALT*CON2
      MAXALTS(JMAX)=MAXALT
      ENDFILE 2
      REWIND 1
      IF(NSW.GT.1) GO TO 112
      HINT=250.
      GO TO 106
  112 IF(NSW.GT.2) GO TO 113
      HINT=1000.
      CON1=1.9425E9
      CON2=3.2808
      GO TO 106
C---------
2     FORMAT(1H )
4     FORMAT(75H   ALT      DIR    SPD    TEMP      TEMP    PRESS    DENSITY
     C  RF       VS      SHR)
5     FORMAT(76H   GEOMM    DEG    MPS      K       CORR     MBS      G/M3
     C  MPS      MPS      /SEC)
6     FORMAT(76H   GEOMFT   DEG    KTS      K       CORR     MBS      G/M3
     C  FPS      KTS      /SEC)
C---------
113   ENDFILE 2
      REWIND 1
      REWIND 2
      RETURN
      END
```

```
      1            SUBROUTINE PLOTCH
      2            DIMENSION IN(5),ICT(20)
      3            WRITE(6,500)
      4      500   FORMAT("1")
      5            REWIND 2
      6            DO 100 I=1,4
      7            READ(2,1) IN
      8      100   WRITE(61,2)IN
      9      1     FORMAT(4A10)
     10      2     FORMAT(1H ,8A10)
     11            WRITE(61,3)
     12      3     FORMAT(1H )
     13            WRITE(61,7)
     14          7 FORMAT(15X, 9HH205  210  215  220  225  230  235  240  245  250  2
     15           C55  260  265  270  275  280  285  290  295  HSG)
     16            WRITE(61,3)
     17      200   READ(2,1,END=210)
     18            GOTO 200
     19      210   BACKSPACE 2
     20            BACKSPACE 2
     21            BACKSPACE 2
     22      111   DO 102 K=1,10
     23      102   ICT(K)=10H
     24            DO 108 K=5,100,5
     25      108   CALL PUTC(ICT,K,8H",1H")
     26            BACKSPACE 2
     27            BACKSPACE 2
     28            READ(2,4)HS,T
     29            IF(HS .EQ. 0.) GO TO 103
     30            IF(HS .GT. 76000.) GOTO 110
     31      4     FORMAT(1X,F7.0,12X,F8.2)
     32            KK=T-200
     33            IF (T.EQ.999.99) KK=100
     34            IF (KK.LE.0.OR.KK.GE.101) KK=100
     35            CALL PUTC(ICT,KK,8H"T")
     36            WRITE(61,5) IFIX(HS),ICT
     37      5     FORMAT(17,5X,10A10)
     38            GO TO 110
     39        103 REWIND 2
     40            RETURN
     41            END
```

```
      SUBROUTINE PUTOUT(MAXALTS)
      DIMENSION MAXALTS(3),IN(3)
C-----------
    1 FORMAT(A10)
    2 FORMAT(//,' MAXIMUM ALTITUDE ',I6,' GEOMMM')
    3 FORMAT('1M')
    4 FORMAT(//,' MAXIMUM ALTITUDE ',I6,' GEOMET')
C-----------
      N=1
      WRITE(61,3)
  100 READ(2,1,END=105) IN
      GOTO 110
  105 IF (N.NE.3) WRITE(61,2) MAXALTS(N)
      IF (N.EQ.3) WRITE(61,4) MAXALTS(N)
      WRITE(61,3)
      N=N+1
      IF (N.GT.3) RETURN
      CLOSE(2,STATUS='KEEP')
      OPEN(2,BUFL=512)
      GOTO 100
  110 WRITE(61,1) IN
      WRITE(10,1) IN
      GOTO 100
C-----------
      END
```

```
      1                SUBROUTINE LTEPRM
      2                DIMENSION H4(20),X4(20),Y4(20),UX4(20),UY4(20),T4(20),UT4(20),
      3               +P4(20),F4(20)
      4                COMMON MAXALT,HFL,PRL,TRL,PE,PC,CONC,CON2,HSP,YIP,YIP,LTEST,NM,ND,
      5               +NY,NT,IND,NS,IX,IA,IR,IC,ID,ROUTEMP,NOBS,TM(6R),INX(1C),IROCK
      6                COMMON GRAT,ZAT,IA1,IRT,IMF,IEW,ICW,TND),IDN
      7                COMMON/CODE/H,X,Y,UX,UY,T,UT,P,F
      8                COMMON/PRES/PL(35)
      9            1   FORMAT(9A10)
     10            C---------
     11                REWIND 1
     12                REWIND 2
     13                ST=999.9
     14            C---- START MAINDATA
     15                DO 98 I=1,5
     16                READ(2,5)IN
     17               98 WRITE(62,5)IN
     18            C     COMPUTE 1000 METER DATA AND PICK SIGNIFICANT LEVELS
     19               92 DO 50 I=1,20
     20               50 H4(I)=X4(I)=Y4(I)=UX4(I)=UY4(I)=T4(I)=UT4(I)=P4(I)=F4(I)=0.0
     21            C---- INITIALIZE
     22                H=TX=TLP=DT=0.0
     23                ICNT=IFLAG=JP=0
     24                IBEG=IP=IEND=IT=1
     25                DO 51 I=1,20
     26                READ(1,END=97) H4(I),X4(I),Y4(I),UX4(I),UY4(I),T4(I),UT4(I),
     27               C P4(I),F4(I)
     28                IF(H4(I).LT.1.) GO TO 92
     29                IF(I.NE.1) GO TO 12
     30            C---- INITIALIZE MIN AND MAX TEMPERATURE
     31                TMX=T4(I)
     32                TMN=T4(I)
     33                IS1=IS2=I
     34                HL=H4(I)
     35                J=HL/1000.
     36                HL=J*1000
     37                H1=HL+1000.
     38               12 IF(TMX.GE.T4(I)) GO TO 13
     39                TMX=T4(I)
     40                IS1=I
     41               13 IF(TMN.LE.T4(I)) GO TO 15
     42                TMN=T4(I)
     43                IS2=I
     44               15   IF(H4(I).GE.H1) GO TO 30
     45               51 CONTINUE
     46               30 IP=IT
     47                IF(IS1.LT.IS2) GO TO 16
     48                IF(IS1.EQ.IS2) IFLAG=ICNT=3
     49            C---- MIN TEMPERATURE ROUTINE
     50               29 IF(IFLAG.EQ.1) GO TO 52
     51                IF(IFLAG.EQ.3.AND.ICNT.GT.1) GO TO 31
     52                IT=IS2
     53                IF(IT.EQ.I) GO TO 28
     54                IFLAG=1
     55                IF(IS2.EQ.1.OR.IS2.EQ.1) GO TO 27
     56                IF(ICNT.GE.1) GO TO 29
     57                GO TO 16
```

```
                27 ICNT=ICNT+2
C---- ADD TEMPERATURE POINTS
                IF(IFLAG.LT.2) GO TO 52
                IF(IFLAG.EQ.3.AND.ICNT.LT.2) GO TO 52
                IT=IS1
                IF(IT.EQ.I) GO TO 28
                IFLAG=2
                IF(IS1.EQ.1.OR.IS1.EQ.I) GO TO 17
                IF(ICNT.GE.1) GO TO 28
                GO TO 18
             17 ICNT=ICNT+2
                GO TO 29
             18 IBEG=1
                GO TO 28
             31 IT=I
                IB=IP
                IBEG=IEND
             28 IB=IP
                IEND=IT
C---- SELECT SIGNIFICANT LEVEL
             54 DO 50 IP=IBEG,IEND
                TX=(H4(IP)-H4(IB))/(H4(IT)-H4(IB))
                TLP=TX*(T4(IT)- T4(IB))+T4(IB)
                DT=ABS(TLP-T4(IP))
                IF(IP.EQ.I) GO TO 53
                IF(DT.GE.2.) GO TO 40
             50 CONTINUE
                IP=IP-1
             40 IB=IP
                IBEG=IB
                IF(H4(IP).GT.H1) GO TO 53
                H=H4(IP)/10.
                PH=H
                PH=PH+.5
                X=X4(IP)
                Y=Y4(IP)
                P=P4(IP)
                E=E4(IP)
                T=T4(IP)
                UX=UX4(IP)
                UY=UY4(IP)
                UT=UT4(IP)
                IF(T4(IP).GT.998.) GO TO 41
                IF((ABS(T4(IP)-ST)).LT.2.) GO TO 41
                CALL CONIT
             41 JP=IP
                ST=T4(IP)
                IF(DT.GE.2.) GO TO 54
                IF(IS1.GT.IT) IEND=IT=IS1
                IF(IS2.GT.IT) IEND=IT=IS1
                IF(IT.NE.I) GO TO 52
                IF (IBEG.EQ.1) GOTO 53
                GOTO 54
             52 IBEG=IEND
                IB=IEND
                IT=I
                IEND=IT
```

```
      GO TO 94
C---- OUTPUT MANDATORY LEVEL
   93 RAT=(H1-H4(IP))/(H4(IP-1)-H4(IP))
      H=H1/10.
      X=VALUE(RAT,X4(IP-1),X4(IP))
      Y=VALUE(RAT,Y4(IP-1),Y4(IP))
      T=VALUE(RAT,T4(IP-1),T4(IP))
      P=VALUE(RAT,P4(IP-1),P4(IP))
      F=VALUE(RAT,F4(IP-1),F4(IP))
      UX=VALUE(RAT,UX4(IP-1),UX4(IP))
      UY=VALUE(RAT,UY4(IP-1),UY4(IP))
      UT=VALUE(RAT,UT4(IP-1),UT4(IP))
      IF(IP.EQ.JP) GO TO 97
      CALL CODIT
      ST=T4(IP)
      BACKSPACE 1
      GO TO 92
C     OUTPUT LAST DATA POINT
   97 BACKSPACE 1
      BACKSPACE 1
      READ(1)H,X,Y,UX,UY,T,UT,P,F
      H = H / 10.
      CALL CODIT
      REWIND 1
      REWIND 2
C---- START CPLEVELS
      J=1
      READ(1)H1,X1,Y1,UX1,UY1,T1,UT1,P1,F1
  100 READ(1,END=106)H2,X2,Y2,UX2,UY2,T2,UT2,P2,F2
  101 IF(P1.GE.999.) GO TO 104
      IF(J .EQ. 24) GO TO 102
      IF(J .EQ. 29) GO TO 102
      IF(J .EQ. 34) GO TO 102
      IF(PL(J) .GT. P1)GO TO 102
      GO TO 103
  102 J=J+1
      GO TO 101
  103 IF(PL(J).LE.P2)GO TO 104
      GO TO 105
  104 H1=H2
      X1=X2
      Y1=Y2
      UX1=UX2
      UY1=UY2
      T1=T2
      UT1=UT2
      P1=P2
      F1=F2
      GO TO 100
  105 RAT=(PL(J)-P2)/(P1-P2)
      H=RAT*(H1-H2)+H2
      X=VALUE(RAT,X1,X2)
      Y=VALUE(RAT,Y1,Y2)
      UX=VALUE(RAT,UX1,UX2)
      UY=VALUE(RAT,UY1,UY2)
      T =VALUE(RAT,T1,T2)
      UT=VALUE(RAT,UT1,UT2)
```

```
172                 F=VALUE(PAT,F1,F2)
173               C---- CONVERT GEOMETRIC HEIGHT TO GEOPOTENTIAL
174                 H = GRAT * (RE * H) / (RE + H) / 10.
175                 F=FL(J)
176                 CALL CODIT
177                 GO TO 104
178               106 REWIND 1
179                 CALL PDRAWIN
180                 RETURN
181                 END
```

```
      SUBROUTINE CODIT
      COMMON/CODE/H,X,Y,UX,UY,T,UT,P,T
      DIMENSION IS(9)
      DATA IS/"-3","-2","-1","0","1","2","3","4","
     C 5"/
      IMNO(A1)=IFIX(SIGN((ABS(A1)+.5),A1))
      IF(PH.EQ.H) RETURN
      DI=WDIR(X,Y)
      SP=WSPD(X,Y)
      IF(X.LT.999.)GO TO 102
      X=Y=UX=UY=9999.
      GO TO 106
  102 X=-X
      UX=-UX
      Y=-Y
      UY=-UY
  105 IF(T.LT.999.)GO TO 108
      T=9999.
      TC=VS=999.
      GO TO 109
  108 VS= 331.45*SQRT(T/273.15)
      T1=T
      T=T-273.15
      UT=UT-273.15
      TC=T-UT
  109 PS=DS=99.99999
      IF(P.LT.999.) PS=10**P
      IF(T.NE.9999.) DS=(PS/T1)*348.38
      D=PS
      K=I1
      DO 10 I=1,2
      B=D+.00000004
      A=10000.
      B=1000.
      C=.001
      IC=0
      IF(D.GT.99.)GO TO 1
      GO TO 2
    1 D=9.999
      K=IS(9)
      GO TO 5
    2 IF(D.LE.A.AND.D.GE.B)GO TO 3
      GO TO 4
    3 IC=IC+1
      D=D*C
      K=IS(IC)
      GO TO 5
    4 A=B
      B=B/10.
      C=C*10.
      IC=IC+1
      GO TO 2
    5 IF (I.EQ.1) GO TO 6
      DS=D
      I2=K
      GO TO 10
    6 PS=D
```

```
      II=K
      J=DT
      K=I2
      CONTINUE
      WRITE(62,110) IRND(H),IRND(DIR),IRND(SPD),IRND(UY),IRND(UX),
     *IRND(Y),IRND(X),IRND(ABS(F)),IRND(T),IRND(TC),DS,I1,DS,I2,IRND(VS)
110   FORMAT(I5,I3.3,I3,4I4,I3.3,I4,I3,2(F5.3,P2),T3)
      RH=H
      RETURN
      END
```

```
      SUBROUTINE PARAMIN
      COMMON MAXALT,MBL,MOL,TOL,KE,PC,CON1,CON2,MSP,YIP,YIP,ITEST,NM,ND,
     CNY,NT,TND,NS,IX,IA,IP,IC,IF,NITER,NOBS,IN(50),INX(150),IBUCK
C---------
1     FORMAT(A4,T1,F10)
2     FORMAT(2A4///8A4/8A4/)
3     FORMAT(F10)
C---------
      M250=6
      REWIND M250
      WRITE(62,2) INX
C---------
      READ(M250,1)
100   READ(M250,1) INC
      IF (INC.NE.4H    ) GOTO 100
C---------
110   READ(M250,1,END=99) INC,IN
      IF (INC.NE.4H    ) WRITE(62,3) IN
      GOTO 110
C---------
99    ENDFILE 62
      RETURN
      END
```

```
      SUBROUTINE INT
C-----------
      READ(2, H1,X1,Y1,UX1,UY1,T1,UT1,P1,F1
  100 READ(2,END=9999) H2,X2,Y2,UX2,UY2,T2,UT2,P2,F2
      WRITE(1) H1,X1,Y1,UX1,UY1,T1,UT1,P1,F1
      IF ((H2-H1).GT.1000.) GOTO 200
  110 H1=H2
      X1=X2
      Y1=Y2
      UX1=UX2
      UY1=UY2
      T1=T2
      UT1=UT2
      P1=P2
      F1=F2
      GOTO 100
  200 CONTINUE
      IH = (H1/1000)*1000
      HS = IH+1000.
  210 IF ((HS+300).GE.H2) GOTO 110
      RAT = (H2-HS)/(H2-H1)
      X = (RAT*(X1-X2))+X2
      Y = (RAT*(Y1-Y2))+Y2
      UX = (RAT*(UX1-UX2))+UX2
      UY = (RAT*(UY1-UY2))+UY2
      T = (RAT*(T1-T2))+T2
      UT = (RAT*(UT1-UT2))+UT2
      P = (RAT*(P1-P2))+P2
      F = (RAT*(F1-F2))+F2
      WRITE(1) HS,X,Y,UX,UY,T,UT,P,F
      HS = HS+1000.
      GOTO 210
C-----------
 9999 WRITE(1) H2,X2,Y2,UX2,UY2,T2,UT2,P2,F2
      ENDFILE 1
      REWIND 1
      REWIND 2
      RETURN
      END
```

```
      SUBROUTINE WOOD
      COMMON MAXALT,HAL,PPL,TAL,RE,PC,CONL,CON2,HSP,YIP,YID,ITEST,NM,ND,
     C NY,NT,INC,NS,IX,IA,IH,IC,ID,NDTEMP,NDES,IN(4),IN2(14),IROCK
      COMMON GRAT,ZAT,IAL,IAT,IMP,ITW,IC2,IMOL,IDN
      COMMON/PRES/PL(35)
      INTEGER HHZTT(100),DDFFF(100),NDPPP(100),HH,DD,FFF
C---------
      IRND(A) = IFIX(SIGN((ABS(A)+.5),A))
C---------
1     FORMAT(I2.2,I..I2.2,1X)
2     FORMAT(I2.2,"/// ")
3     FORMAT(I2.2,I3.3,1X)
4     FORMAT("///// ")
5     FORMAT("9",I1,I3.3,1X)
6     FORMAT("9//// ")
1000  FORMAT(A10)
1001  FORMAT(1X,I7,2I6,F8.2,17X,F9.4)
20001 FORMAT(4X,A6,A6,A6,A6,A6,A6,A6,A6,A6,A6)
20002 FORMAT(4X,"RRXX",2(1X,I2.2,I3.3),1X,I5,2(1X,I1,I2,2I1))
20003 FORMAT("    JJJ")
C---------
      ICD=9
      LUN=2
      REWIND LUN
      IGROUP=0
C-----GET POSITIONED AT BEGINNING OF THE 1000 METER OUTPUT
100   READ(LUN,1000) MTRS
      IF (MTRS.NE." GEOMM ") GOTO 100
      READ(LUN,1001)
C-----GET LOWEST DATA POINT WITH DIR AND SPD AVAILABLE
150   READ(LUN,1001) HH,DD,FFF,TT,PPP
C-----CHECK FOR FIRST GOOD LEVEL
      IF(DD.EQ.999.OR.FFF.EQ.999) GO TO 150
      BACKSPACE LUN
26    READ(LUN,1001,END=27) HH,DD,FFF,TT,PPP
      IF(DD.EQ.999.AND.FFF.EQ.999.AND.TT.EQ.999.99)
     C GOTO 27
      IHH=MOD(HH,1000)
      IF (IHH.NE.0) GOTO 27
      IGROUP=IGROUP+1
      IH = HH/1000.
      IF (TT.GT.998.) GOTO 200
      TT = TT-273.15
      IT = IRND(TT)
      IZ = 6
      IF (IT.GE.-99) IZ=5
      IF (IT.GE.0) IZ=0
      IT = IABS(IT)
      ENCODE(6,1,HHZTT(IGROUP)) IH,IZ,IT
      GOTO 210
200   ENCODE(6,2,HHZTT(IGROUP)) IH
C---------
210   IF (DD.GT.998.OR.FFF.GT.998) GOTO 220
      IF (DD.GT.360)  DD=DD-360
      DD=(DD+5)/10
      IF (DD.EQ.0) DD=36
      ENCODE(6,3,DDFFF(IGROUP)) DD,FFF
```

```
      GOTO 230
  220 ENCODE(6,4,DDFF=F(IGROUP))
C---------
  230 IF (PPP.GT.990.) GOTO 240
      TESTP = 100.
      DO 250 IP=1,10
      IF (PPP.GE.TESTP) GOTO 260
      TESTP = TESTP/10.
  250 CONTINUE
      GOTO 240
  260 IP = IP-1
      IWORKD = PPP*10**IP+.5
      ENCODE(6,5,NDPPP(IGROUP)) IP,IWORKD
      GOTO 26
  240 ENCODE(6,6,NDPPP(IGROUP))
      GOTO 26
C---------
   27 MIN=MOD(NT,100)
      IHR=NT/100
      MIN=MIN+5
      IF(MIN.GE.60) MIN=0
      IF(MIN.EQ.0) IHR=IHR+1
      IF(IHR.EQ.24) IHR=0
      NT=(IHR*10)+(MIN/10)
      INTIND=74794
      NYY = NY-1000
      WRITE(61,20002) ND,NT,NM,NYY,INTIND,IA1,IN01,IKT,IMR,IND,
     C IEW,ICW,IMR
      WRITE(ICD,20002) ND,NT,NM,NYY,INTIND,IA1,IN01,IKT,IMR,IND,
     C IEW,ICW,IMR
      WRITE(61,20001) (HHZTT(K),DDFFF(K),NDPPP(K),K=1,IGROUP)
      WRITE(ICD,20001) (HHZTT(K),DDFFF(K),NDPPP(K),K=1,IGROUP)
C---- STANDARD MANDATORY LEVEL DATA
C---------
      CALL MANDL
C---------
      WRITE(61,20003)
      RETURN
      END
```

```
      SUBROUTINE MANDL
      COMMON MAXALT,APL,PAL,TAL,P1,P2,CON1,CON2,HSP,XIP,YIP,ITEST,NM,NF,
     1 NY,NT,IPD,NS,IX,IA,IB,IC,ID,NOTHME,IJK,JL(4),INX(12),IPLOM
      COMMON GRAT,ZAT,TA,,IKT,IMP,IFU,ICA,IND1,IDM
      COMMON/PRES/PL(35)
      DIMENSION OUT(10M)
      DIMENSION ISIG(6)
C---------
 1    FORMAT(F2,I1,I2.2,1X)
 2    FORMAT(F2,"/// ")
 3    FORMAT(I2.2,I3.3,1X)
 4    FORMAT("///// ")
 5    FORMAT(4X,A6,A6,A6,A6,A6,A6,A6,A6,A6,A6)
C---------
C---- SIGNIFICANT DIGIT TABLE
C---- SET CONSTANTS
      DATA ISIG/R"11",R"22",R"33",R"44",R"55",R"66"/
C
      ICD=9
      PRBIND 1
      DO 90 M=1,10M
   90 OUT(M)=10H
      J = M = 1
C---- START MANDATORY DATA SELECTION
      READ (1)  H1,X1,Y1,UX1,UY1,T1,UT1,P1,F1
  100 READ(1,END=250)H2,X2,Y2,UX1,UY1,T2,UT1,P2,F1
      IF (P1.GE.999.) GOTO 104
  101 IF (PL(J).LE.P1) GOTO 103
      J=J+1
      GO TO 101
  103 IF (PL(J).GT.P2) GOTO 105
  104 H1=H2
      X1=X2
      Y1=Y2
      T1=T2
      P1=P2
      GO TO 100
  105 RAT=(PL(J)-P2)/(P1-P2)
      H  =RAT*(H1-H2)+H2
      X  =VALUE(RAT,X1,X2)
      Y  =VALUE(RAT,Y1,Y2)
      T  =VALUE(RAT,T1,T2)
      DIR=WDIR(X,Y)
      SPD=WSPD(X,Y)
      IF (X.LT.999.) GOTO 202
      DIR = SPD = 9999.
      GO TO 206
  202 X=-X
      Y=-Y
  206 IF (T.LT.999.) GOTO 208
      T=9999.
      IF(P2 .GE. 999.) GO TO 100
  208 T=T-273.15
      JS = 6
      IF (J.LT.31) JS=5
      IF (J.LT.26) JS=4
      IF (J.LT.21) JS=3
```

```
      IF (J.LT.10) JS=2
      IF (I.LT.10) J=I
      IF(I .GT. 9000.) GO TO 221
      T=6.*T
      IT=T
      IF (IT.LE.99) GOTO 217
      KA = 5
      IT = IT-100
      GOTO 218
  217 IF (IT.LE.0) GOTO 219
      KA = 5
      GOTO 218
  219 KA = 0
      IT = -IT
  218 ENCODE(6,1,OUT(M)) ISIG(JS),KA,IT
      GOTO 220
  221 ENCODE(6,2,OUT(M)) ISIG(JS)
  220 M=M+1
      F1 = .5
      IF(PL(J) .LT. 0.) F1 = .05
      IF(PL(J) .LT.-1.) F1 = .005
      IF(PL(J) .LT.-2.) F1 = .0005
      IF(PL(J) .LT.-3.) F1 = .00005
      IF(PL(J) .LT.-4.) F1 = .000005
      IPS = (10.**PL(J) + F1) * (10 ** JS / 10)
      IH = ((GRAT * (RE * H) / (RE + H)) +5.) / 100.
      IF(JS .EQ. 6) IH = IH / 10
      ENCODE(6,3,OUT(M)) IPS,IH
      M = M+1
C-----
      IDD = (DIR + 5.) / 10
      ISS=SPD+.5
      IF (IDD.LT.999.AND.ISS.LT.999) GOTO 234
      ENCODE(6,4,OUT(M))
  234 IF (IDD.EQ.0) IDD=36
      ENCODE(6,3,OUT(M)) IDD,ISS
      M=M+1
      IF (EOF(1).NE.0) GOTO 252
      GOTO 104
C-----
  250 IF (PL(J).NE.P1) GOTO 252
      H2=H1
      X2=X1
      Y2=Y1
      T2=T1
      P2=P1
      GO TO 105
C-----
  252 IF (M.EQ.1) GO TO 290
      M = M-1
      WRITE(ICO,5) (OUT(I),I=1,M)
      WRITE(F1,5) (OUT(I),I=1,M)
  290 REWIND 2
      RETURN
      END
```

SECTION B

METEOROLOGICAL SOUNDING SYSTEM (MSS)
DATA GENERAL NOVA-3/12 FORTRAN V
ROCKETSONDE PROGRAM

(ROCS 3)

ABSTRACT

The MSS rocketsonde reduction procedure is designed for use with transponder sondes only, such as the PWN-10A. It consists of two programs, Pass 1 and Pass 2.

This document is divided into two self-contained sections.

Pass 1

Pass 1 of the MSS rocketsonde reduction procedure reduces the wind and temperature data recorded by the MSS realtime program. Output options and surface data are entered by the operator from the display console. This pass produces quality control data, constant altitude data, and two disk files.

Pass 2

Pass 2 of the MSS rocketsonde reduction procedure extracts the HAMDATA levels from the intermediate scratch file and the co-rawinsonde file. This pass uses the 1,000-meter constant altitude file and the intermediate scratch file to produce the ROCOB coded message.

PASS 1

1.0 Module Description

1.1 Main Routine

Initializes the various control and conversion constants, reads in rocket data from diskette to scratch file, and controls the flow of data through the subroutines.

1.2 Subroutine MIDINT

Computes the midpoint of altitude layers and calculates uncorrected component winds and fall rates for the layers between data points.

1.3 Subroutine BANDTC

Computes ballistic motion corrections for correcting winds according to Eddy (Reference 2 in Bibliography). Temperature corrections are computed as described in FMH 10, Section E of Appendix I.

1.4 Subroutine TWOKM

Smooths component wind data over 2-km thicknesses, producing 2-km mean thickness winds.

1.5 Subroutine SIMQ

Uses a least squares method of smoothing, providing a best fit of the components by generating a second degree polynomial equation in general form.

1.6 Subroutine PRESCOM

Converts geometric altitude to geopotential units, computes mean virtual temperature, and computes atmospheric pressure using a standard form of the hypsometric equation.

1.7 Subroutine ONEKILO

Rearranges data in a 1-km array and computes maximum altitude recorded by the sounding.

1.8 Subroutine OUTPUT

Computes pressure, density, and velocity of sound, and formats tabular data for output.

1.9 Subroutine PLOTCH

Formats temperature data for the printer; plots temperature versus altitude as an aid to quality control.

1.10 Subroutine COMPXYZ

Computes X (east-west component), Y (north-south component), and Z (altitude) as well as an elevation angle correction for the Earth's curvature.

1.11 Subroutine GRAVITY

Computes the ratio of the station's acceleration of gravity to the acceleration of gravity at 45 degrees latitude, using the expression given at the top of Table 168, *Smithsonian Meteorological Tables.* List 1968.

1.12 Subroutine COMPRSR

Computes and tabulates the differences in temperatures from the co-rawinsonde observation and the rocketsonde observation in the overlap region.

1.13 Subroutine CHKOUT

Computes and tabulates the differences in the parameters between data levels as an aid to quality control.

1.14 Function IGETC

Retrieves a character from a word or an array of words.

1.15 Subroutine PUTC

Inserts a character in a word or an array of words.

1.16 Function WDIR

Computes wind direction in meteorological polar coordinate system.

1.17 Function WSPD

Computes windspeed using velocity components as input data.

1.18 Function VALUE

Interpolates for a value or sets missing data to nines.

2.0 MATHEMATICAL DESCRIPTION

2.1 Main Routine

None

2.2 Subroutine MIDINT

2.2.1 Computation of Mean Temperature of Two Adjacent Levels

$$TP = (T + TA)/2$$

where TP = mean temperature (degrees K)

T = temperature, upper level (degrees K)

TA = temperature, lower level (degrees K)

2.2.2 Computation of Mean Height of Two Adjacent Levels

$$H = (Z + ZA)/2$$

where H = mean height (meters)

Z = height, upper level (meters)

ZA = height, lower level (meters)

2.2.3 Computation of Mean Time of Two Adjacent Levels

$$GG = (G + GA)/2$$

where GG = mean time (seconds after launch)

G = time, upper level (seconds after launch)

GA = time, lower level (seconds after launch)

2.2.4 Computation of East-West and North-South Velocity Components

$$V_X = (X - XA)/(GA - G)$$

$$V_Y = (Y - YA)/(GA - G)$$

where V_X = east-west velocity component (meters/second)

V_Y = north-south velocity component (meters/second)

X = east-west position component, upper level (meters)

XA = east-west position component, lower level (meters)

Y = north-south position component, upper level (meters)

YA = north-south position component, lower level (meters)

G = time, upper level (seconds after launch)

GA = time, lower level (seconds after launch)

2.2.5 Computation of Fall Rate

$$V_Z = (ZA - Z)/(GA - G)$$

where V_Z = fall rate (meters/second)

ZA = height, lower level (meters)

Z = height, upper level (meters)

GA = time, lower level (seconds after launch)

G = time, upper level (seconds after launch)

2.3 Subroutine BANDTC

2.3.1 Computation of Local Acceleration of Gravity

$$Gr = GRAT \cdot 9.80616$$

where Gr = local acceleration of gravity

$GRAT$ = ratio of local acceleration of gravity to acceleration of gravity at 45 degrees latitude

9.80616 = acceleration of gravity at 45 degrees latitude

2.3.2 Correction of East-West and North-South Velocity Components

$$V_{X_C} = V_{X_2} - \frac{\{V_{Z_2} \cdot [(V_{X_3} - V_{X_1})/(G_3 - G_1)]\}}{[(V_{Z_3} - V_{Z_1})/(G_3 - G_1)] + Gr}$$

$$V_{Y_C} = V_{Y_2} - \frac{\{V_{Z_2} \cdot [(V_{Y_3} - V_{Y_1})/(G_3 - G_1)]\}}{[(V_{Z_3} - V_{Z_1})/(G_3 - G_1)] + Gr}$$

where V_{X_C} = corrected east-west velocity component

V_{Y_C} = corrected north-south velocity component

1 = upper level

2 = intermediate level

3 = lower level

V_X = east-west velocity component

V_Y = north-south velocity component

V_Z = *vertical velocity*

G = time after launch (seconds)

Gr = local acceleration of gravity

2.3.3 Computation of Ventilation Velocity

$$XX = X_{X_C} - V_{X_2}$$

$$YY = V_{Y_C} - V_{Y_2}$$

$$V = \sqrt{V_{Z_2}^2 + XX^2 + YY^2}$$

where V = ventilation velocity

V_{X_C} = corrected east-west velocity component

V_{Y_C} = corrected north-south velocity component

V_{X_2} = east-west velocity component, intermediate level

V_{Y_2} = north-south velocity component, intermediate level

V_{Z_2} = vertical velocity, intermediate level

XX,YY = intermediate variables

2.3.4 Aerodynamic Heating Correction to Temperature

$$AA = K_{1(Z)} \cdot V^2$$

where AA = aerodynamic heating correction

Z = 20—70 kilometers

$K_{1(Z)}$ = aerodynamic heating term vs altitude (see **paragraph** 7.3)

V = *ventilation velocity*

2.3.5 Time Lag Correction to Temperature

$$AB = K_{2(Z)} \cdot [(T_3 - T_1)/G_3 - G_1)]$$

where AB = time lag correction

Z = 20—70 kilometers

$K_{2(Z)}$ = time lag term vs altitude (see **paragraph** 7.3)

T_1 = temperature, upper level (degrees K)

T_3 = temperature, lower level, (degrees K)

G_1 = time, upper level (seconds after launch)

G_3 = time, lower level (seconds after launch)

2.3.6 Radiation Heat Loss Correction to Temperature

$$AD = K_{3(Z)} \cdot T_2^4$$

where AD = radiation heat loss correction

Z = 20—70 kilometers

$K_{3(Z)}$ = radiation heat loss term vs altitude (see paragraph 7.3)

T_2 = temperature, intermediate level (degrees K)

2.3.7 Radiation and Electrical Correction to Temperature

$$AC = K_{4(Z)}$$

where AC = radiation and electrical correction

Z = 20—70 kilometers

$K_{4(Z)}$ = radiation and electrical heating term vs altitude (variable between day and night; see paragraph 7.3)

2.3.8 Computation of Corrected Temperature

$$T = T_2 - AA + AB - AC + AD$$

where T = corrected temperature (degrees K)

T_2 = temperature, intermediate level (degrees K)

AA = aerodynamic heating correction

AB = time lag correction

AC = radiation and electrical correction

AD = radiation heat loss correction

2.4 Subroutine TWOKM

None

2.5 Subroutine SIMQ

None

2.6 Subroutine PRESCOM

2.6.1 Computation of Geopotential Height

$$H = GRAT \cdot [(Re \cdot Z)/(Re + Z)]$$

where H = geopotential height (meters)

GRAT = ratio of local acceleration of gravity to acceleration of gravity at 45 degrees latitude

Re = mean radius of the Earth (meters)

Z = geometric height (meters)

2.6.2 Computation of Mean Virtual Temperature

$$TV = (T + T_P)/2$$

where TV = mean virtual temperature (degrees K)

T = temperature of the level (degrees K)

T_P = temperature, previous level (degrees K)

2.6.3 Computation of the Log of the Barometric Pressure

$$P = P_P - [(H - H_P)/(PC \cdot TV)]$$

where P = log of the barometric pressure

P_P = log of the barometric pressure, previous level

H = geopotential height of the level

H_P = geopotential height, previous level

PC = 67.442, a constant in the hypsometric equation when units are meters

TV = mean virtual temperature

2.7 Subroutine ONEKILO

2.7.1 Computation of Initial Output Height

$$HS = [(HI/1000) \cdot 1000] + H_{INT}$$

where HS = initial output height (meters or feet)

HI = lowest input height (meters or feet)

H_{INT} = output interval

2.7.2 Computation of Interpolation Ratio

$$K = (HS - HB)/(HA - HB)$$

where K = interpolation ratio

HS = output level (meters or feet)

HA = upper level height (meters or feet)

HB = lower level height (meters or feet)

2.7.3 Interpolation for East-West Velocity Component, North-South Velocity Component, Temperature, Uncorrected Temperature, and Fall Rate

$$X = K \cdot (XA - XB) + XB$$

where X = parameter interpolated

K = interpolation ratio

XA = lower level parameter

XB = upper level parameter

2.7.4 Interpolation of the Log of Pressure

$$P = K \cdot (PA - PB) + PB$$

where P = interpolated log of pressure

K = interpolation ratio

PA = log of pressure, lower level

PB = log of pressure, upper level

2.8 Subroutine OUTPUT

2.8.1 Computation of Barometric Pressure

$$P = 10^{PL}$$

where P = barometric pressure (millibars)

PL = log of barometric pressure

2.8.3 Computation of Density

$$\varrho = 348.38 \cdot (P/T)$$

where ϱ = density, grams per cubic meter

P = barometric pressure, millibars

T = temperature, degrees Kelvin

348.38 = gas constant for dry air and conversion factors, with pressure in millibars and density in grams/cubic meter

2.8.3 Computation of Velocity of Sound

$$VS = 331.45 \cdot \sqrt{T/273.15}$$

where VS = velocity of sound (meters/second)

T = temperature (degrees K)

273.15 = freezing point of water (degrees K)

331.45 = velocity of sound at 273.15°K (meters/second)

2.8.4 Computation of Vertical Wind Shear

$$WS = \frac{\sqrt{(V_X - V_{X_P})^2 + (V_Y - V_{Y_P})^2}}{HS - HSP}$$

where WS = vertical wind shear (/second)

V_X = corrected east-west velocity component (meters/second)

V_Y = corrected north-south velocity component (meters/second)

V_{X_P} = corrected east-west velocity component, previous level (meters/second)

V_{Y_P} = corrected north-south velocity component, previous level (meters/second)

HS = output height (meters)

HS_P = previous output height (meters)

2.9 Subroutine PLOTCH

None

2.10 Subroutine COMPXYZ

2.10.1 Conversion of Range to Meters

$$R = RR \cdot 0.9144$$

where R = range (meters)

RR = range (yards)

0.9144 = meters in a yard

2.10.2 Computation of Geometric Height

$$Z = \sqrt{[(Re + HA)^2 + R^2 + 2R \cdot (Re + HA) \cdot \sin \phi]} - Re$$

where Z = geometric height (meters)

Re = mean radius of the Earth (meters)

HA = station height (meters)

R = slant range (meters)

ϕ = elevation angle

2.10.3 Correction of Elevation Angle for Earth's Curvature

$$\phi_C = \phi + \{[Z \cdot (\cos \phi / \sin \phi)] / 2.2 \cdot Re\}$$

where ϕ_C = elevation angle corrected for the Earth's curvature

ϕ = elevation angle, uncorrected

Z = height (meters)

Re = mean radius of the Earth (meters)

2.10.4 Computation of East-West and North-South Position Components

$$X = R \cdot \cos(\phi_C) \cdot \sin(\theta)$$

$$Y = R \cdot \cos(\phi_C) \cdot \cos(\theta)$$

where X = east-west position component

Y = north-south position component

R = slant range (meters)

ϕ_C = elevation angle corrected for the Earth's curvature

θ = azimuth angle

2.11 Subroutine GRAVITY

2.11.1 Computation of Ratio of Local Gravity to Gravity at 45° Latitude

$$GRAT = 1 - [0.0026373 \cdot \cos(2 \cdot LAT)] + \{0.0000059 \cdot [\cos(2 \cdot LAT)]^2\}$$

where GRAT = ratio of local gravity to gravity at 45 degrees latitude

LAT = station latitude (degrees)

0.0026373, 0.0000059 constants, *Smithsonian Meteorology Tables*, page 488, equation 1, List 1951

2.12 Subroutine COMPRSR

2.12.1 Computation of Interpolation Ratio

$$K = (ZA - Z)/(ZA - ZB)$$

where K = interpolation ratio

Z = desired output height

ZA = height of the upper level

ZB = height of the lower level

2.12.2 Interpolation for Temperature

$$T = K \cdot (TA - TB) + TB$$

where T = comparison temperature

K = interpolation ratio

TA = upper level temperature

TB = lower level temperature

2.12.3 Computation of Temperature Difference

$$DIFF = TRO - TRA$$

where DIFF = temperature difference (degrees C)

TRO = rocketsonde temperature (degrees C)

TRA = rawinsonde temperature (degrees C)

2.13 Subroutine CHKOUT

2.13.1 Computation of Time Difference Between Levels in Fractional Parts of a Minute

$$\Delta G = 60/(G - G1)$$

where ΔG = time difference

G = time, lower level (seconds after launch)

G1 = time, upper level (seconds after launch)

2.13.2 Computation of Azimuth, Elevation, Range, and Height Differences for Each Minute

$$\Delta\theta = (\theta - \theta 1) \cdot \Delta G$$

$$\Delta\phi = (\phi - \phi 1) \cdot \Delta G$$

$$\Delta R = (R - R1) \cdot \Delta G$$

$$\Delta Z = (Z - Z1) \cdot \Delta G$$

where $\Delta\theta$ = azimuth difference/minute

θ = azimuth, lower level

$\theta 1$ = azimuth, upper level

ΔG = time difference between levels

$\Delta\phi$ = elevation difference/minute

ϕ = elevation, lower level

$\phi 1$ = elevation, upper level

ΔR = range difference/minute

R = range, lower level

$R1$ = range, upper level

ΔZ = height difference/minute

Z = height, lower level

$Z1$ = height, upper level

2.14 Function IGETC

None

2.15 Subroutine PUTC

None

2.16 Function WDIR

2.16.1 Computation of Wind Direction

$$D = \tan^{-1}(Y/X) \cdot 57.29578$$

If $X < 0$,

then $WDIR = 270 - D$

If $X > 0$,

then $WDIR = 90 - D$

If $X = 0$ and $Y \geq 0$

then $WDIR = 360$

If $X = 0$ and $Y < 0$

then $WDIR = 180$

where WDIR = wind direction, meteorological polar coordinates

D = wind direction, Cartesian coordinates

X = east-west velocity vector

Y = north-south velocity vector

57.29578 = degrees in a radian

2.17 Function WSPD

2.17.1 Computation of Windspeed

$$WSPD = \sqrt{X^2 + Y^2}$$

where WSPD = windspeed

X = east-west velocity vector

Y = north-south velocity vector

2.18 Function VALUE

None

3.0 INPUT

Raw data input is from the floppy disk which has been recorded and smoothed by the realtime system. Options are input in conversational mode from the display console. The co-rawinsonde data input is from the floppy disk output of the rawinsonde reduction program.

Header Record

Words	Contents
1—5	Flight identification (10 characters)
6	Encoded sonde type
7	Number of points smoothing
8	Smoothed data output rate
9	Hard-copy option
10	Hard-copy output rate
11	Scrolled data output rate
12—13	Station altitude (feet)
14—15	Station temperature (degrees C)
16—17	Station pressure (millibars)
18—20	Sonde identification (6 characters)
21—23	Channel 1 identification (6 characters)
24—25	Calibration constant 1 for channel 1
26—27	Calibration constant 2 for channel 1
28—29	Calibration constant 3 for channel 1
30—32	Channel 3 identification (6 characters)
33—34	Calibration constant 1 for channel 3
35—36	Calibration constant 2 for channel 3
37—38	Calibration constant 3 for channel 3
39—40	Calibration constant for channel 2
41	Hygristor selection
42—89	Temperature log calculation table
90—137	Temperature ratio calculation table
138—140	Q9 sonde identification (6 characters)
141—142	Q9 baseline temperature ordinate
143—144	Q9 baseline relative humidity
145—146	Q9 baseline temperature (degrees C)
147	Q9 hygristor selection
148	Flight date
149—152	Flight starting time (hours, minutes, seconds, tenths of seconds)
153	Number of blocks written
154—256	Unused (zeros)

Data Record

Data records are packed with eight 32-word records into one 256-word block.

Word	Contents
1	Software status word
2	Time (tenths of seconds)
3	Hardware status word 1
4	Hardware status word 2
5—6	X position of instrument (yards)
7—8	Y position of instrument (yards)
9—10	Z position of instrument (yards)
11—12	Slant range (yards)
13—14	Ground range (yards)
15—16	Altitude (yards above MSL)
17—18	Azimuth (degrees from true north)
19—20	Elevation (degrees)
21—22	Temperature channel 1 (degrees C)
23—24	Temperature channel 2 (degrees C)
25—26	Temperature channel 3 (degrees C)
27—32	Unused (zeros)

Sample Options Dialogue

Prompt	Operator Input
WAS THIS A NIGHT LAUNCH (YES/NO)	NO
OUTPUT TO CONSOLE OR PRINTER (CNS/PRT)	PRT
ENTER STATION ID FROM M.D.G.	01
WHAT IS THE FIRST GOOD TIME	192

Co-rawinsonde Data Format

Control File

Word	Contents
1	Units switch (feet/meters)
2	Winds in feet/second switch
3	Interpolation switch
4	Output device indicator

Control File (Continued)

Words	Contents
5	Optical index of refraction units switch
6	Wind shear in knots switch
7—8	Surface wind x component
9—10	Surface wind y component
11—12	Surface wind direction
13—14	Surface windspeed
15	Station number
16	Day
17	Month
18	Year
19—20	Altitude increment (meters)
21	Release time
22—23	Tropopause wind direction (degrees from true north)
24—25	Tropopause time (seconds)
26—27	Tropopause geopotential height (meters)
28—29	Tropopause dewpoint (degrees C)
30—31	Tropopause geometric height (meters)
32—33	Tropopause refractive index (optical/N)
34—35	Tropopause pressure (millibars)
36—37	Tropopause temperature (degrees C)
38—39	Tropopause relative humidity (percent)
40—41	Tropopause windspeed (meters/second)
42—45	Station latitude (double precision) (degrees)
46—47	Termination height (geometric meters)
48—49	Termination pressure (millibars)
50—54	Flight identification
55	Sonde type

Significant File

Words	Contents
1—2	Altitude (meters, geometric)
3	Wind direction (degrees)
4	Windspeed (meters/second)
5—6	Temperature (degrees C)
7—8	Dewpoint (degrees C)
9—10	Pressure (millibars)
11—12	Refractive index (N units)
13—14	Relative humidity (percent)

Mandatory File

Words	Contents
1—2	Altitude (meters, geopotential)
3	Wind direction (degrees)
4	Windspeed (meters/second)
5—6	Temperature (degrees C)
7—8	Dewpoint (degrees C)
9—10	Pressure (millibars)
11—12	Relative humidity (percent)

Tabulation File

Words	Contents
1—2	Altitude (meters, geometric)
3—4	Wind direction (degrees)
5—6	Windspeed (meters/second)
7—8	Temperature (degrees C)
9—10	Dewpoint (degrees C)
11—12	Pressure (millibars)
13—14	Relative humidity (percent)
15—16	Absolute humidity (grams/cubic meter)
17—18	Density (grams/cubic meter)
19—20	Index of refraction (N)
21—22	Velocity of sound (meters/second)
23—24	Shear velocity ($seconds^{-1}$)
25—26	Vapor pressure (millibars)
27—28	Precipitable water (millimeters)

4.0 OUTPUT

The output is in two forms. One is quality control outputs to the printer for use by the operator. The second is constant altitude data in kilometers, 250-meter intervals, and thousands of feet.

The quality control outputs are as follows:

Data Comparison by Level

Time	Seconds after midnight
Azimuth	Degrees from true north
Elevation	Degrees from horizontal
Slant Range	Meters from tracker
Height	Meters above ground level

Data Comparison by Level (Continued)

Hour	Hour of the data level (local)
Minute	Minute of the data level (local)
Seconds	Second of the data level (local)
Time Difference	Seconds between data levels
Azimuth Difference	Degrees/minute between levels
Elevation Difference	Degrees/minute between levels
Slant Range Difference	Meters/minute between levels
Altitude Difference	Meters/minute between levels

Temperature Comparison — Rocketsonde Vs Rawinsonde

Altitude	Meters
Rocketsonde Temperature	Degrees Celsius
Rawinsonde Temperature	Degrees Celsius
Temperature Difference	Degrees Celsius

The scratch file is as follows:

Words	Contents
1—2	Altitude, meters
3—4	East-west velocity component, meters/second
5—6	North-south velocity component, meters/second
7—8	Uncorrected east-west velocity component, meters/second
9—10	Uncorrected north-south velocity component, meters/second
11—12	Temperature (degrees K)
13—14	Uncorrected temperature (degrees K)
15—16	Barometric pressure (millibars)
17—18	Fall rate, meters/second

Constant Altitude Data

Height	Geometric feet or meters at standard intervals of 1 km, 250 meters, and 1,000 feet
Wind Direction	In degrees from true north. Missing data is shown as 999
Windspeed	In knots or meters/second; calm is 000 and missing is 999
Temperature	In degrees Kelvin
Temperature Correction	In degrees Kelvin
Atmospheric Pressure	Millibars
Atmospheric Density	Grams/cubic meter
Fall Rate	In feet/second or meters/second (determined by height units)
Speed of Sound	In knots of meters/second (determined by height units)
Wind Shear	$Seconds^{-1}$

Sample Options Dialogue

Prompt	Operator Input
Output to console or printer (CNS/PRT)	PRT

Plot of Temperature Vs Altitude

Altitude	Meters
Temperature	Degrees Kelvin

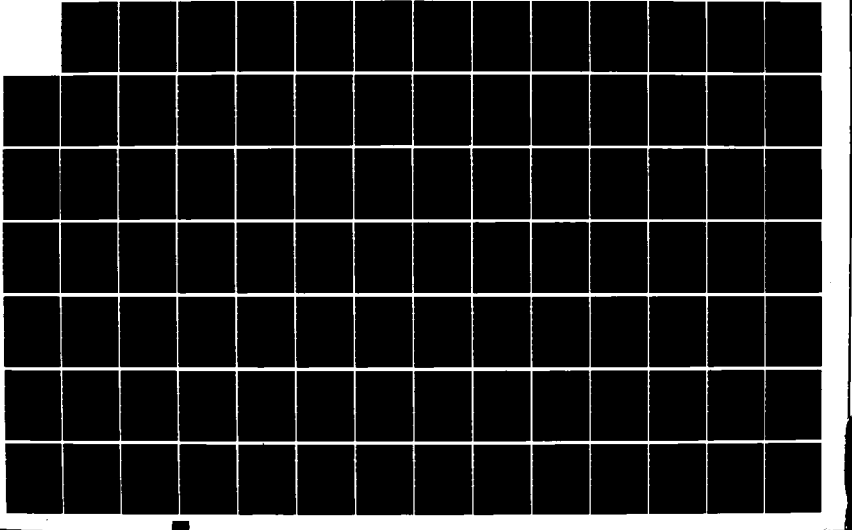
Constant Altitude Data

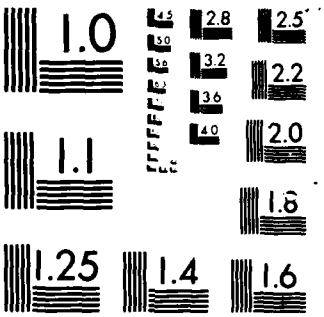
Height	Geometric feet or meters at standard intervals of 1 km, 250 meters, and 1,000 feet
Wind Direction	In degrees from true north. Missing data is shown as 999
Windspeed	In knots or meters/second; calm is 000 and missing is 999
Temperature	In degrees Kelvin
Temperature Correction	In degrees Kelvin
Atmospheric Pressure	Millibars
Atmospheric Density	Grams/cubic meter
Fall Rate	In feet/second or meters/second (determined by height units)
Speed of Sound	In knots or meters/second (determined by height units)
Wind Shear	$Seconds^{-1}$

A scratch file is output to diskette for Pass 2 of the program. This data is as follows:

Words	Contents
1—2	Altitude (meters)
3—4	East-west velocity component (meters/second)
5—6	North-south velocity component (meters/second)
7—8	Uncorrected east-west velocity component (meters/second)
9—10	Uncorrected north-south velocity component (meters/second)
11—12	Temperature (degrees K)
13—14	Uncorrected temperature (degrees K)
15—16	Barometric pressure (millibars)
17—18	Fall rate (meters/second)

AD-A163 634 IRIG STANDARDS FOR RANGE METEOROLOGICAL DATA REDUCTION 3/5
PART 2 ROCKETSONDE(U) RANGE COMMANDERS COUNCIL WHITE
SANDS MISSILE RANGE NM INTER-R.. DEC 85
UNCLASSIFIED IRIG-STANDARD-352-85-PT-2 F/G 4/1 NL





5.0 ALGORITHMS

5.1 Subroutine TWOKM

Set up values that are to be used when calling SIMQ by multiplying elements of the matrix and assigning to proper place in symmetric coefficient matrix [A].

$$AX_{(I,J)} = XA_{(I,J)} + XC_{(K,I)} \cdot SC_{(K,J)}$$

$$AY_{(I,J)} = YA_{(I,J)} + YC_{(K,I)} \cdot YC_{(K,J)}$$

Set up values that are to be used when calling SIMQ by multiplying elements of the matrix and assigning to proper place in constant vector matrix [B].

$$BX_I = XB_I + XC_{(K,I)} \cdot X_K$$

$$BY_I = YB_I + YC_{(K,I)} \cdot Y_K$$

Using the coefficients returned from SIMQ, calculate a smoothed X and Y

$$S_X = a^2XB_1 + aXB_2 + XB_1$$

$$S_Y = a^2YB_1 + aYB_2 + YB_1$$

where $a = 5$

XB = coefficients returned from SIMQ

S_X = smoothed east-west component

S_Y = smoothed north-south component

5.2 Subroutine SIMQ

The least squares method provides a best fit of the components by generating a second degree polynomial equation, of general form

$$y = k_2x^2 + k_1x + k_0$$

and computing an offset from the center of the 9- point range. Two matrixes are created, designated [A] and [B]. Symmetric coefficient matrix [A] is

$$[A] = \begin{bmatrix} N & \Sigma X_i & \Sigma X_i^2 \\ \Sigma X_i & \Sigma X_i^2 & \Sigma X_i^3 \\ \Sigma X_i^2 & \Sigma X_i^3 & \Sigma X_i^4 \end{bmatrix}$$

and constant vector matrix [B] is

$$[B] = \begin{bmatrix} \Sigma Y_i \\ \Sigma X_i\ Y_i \\ \Sigma X_i^2\ Y_i \end{bmatrix}$$

Note: Σ indicates summation from 1 to N; N = 9.

Basic matrix equation [A] [K] = [B] is solved by finding the inverse of [A], $[A]^{-1}$, and performing multiplications:

$$[A]^{-1}\ [A]\ [K] = [A]^{-1}\ [B]$$

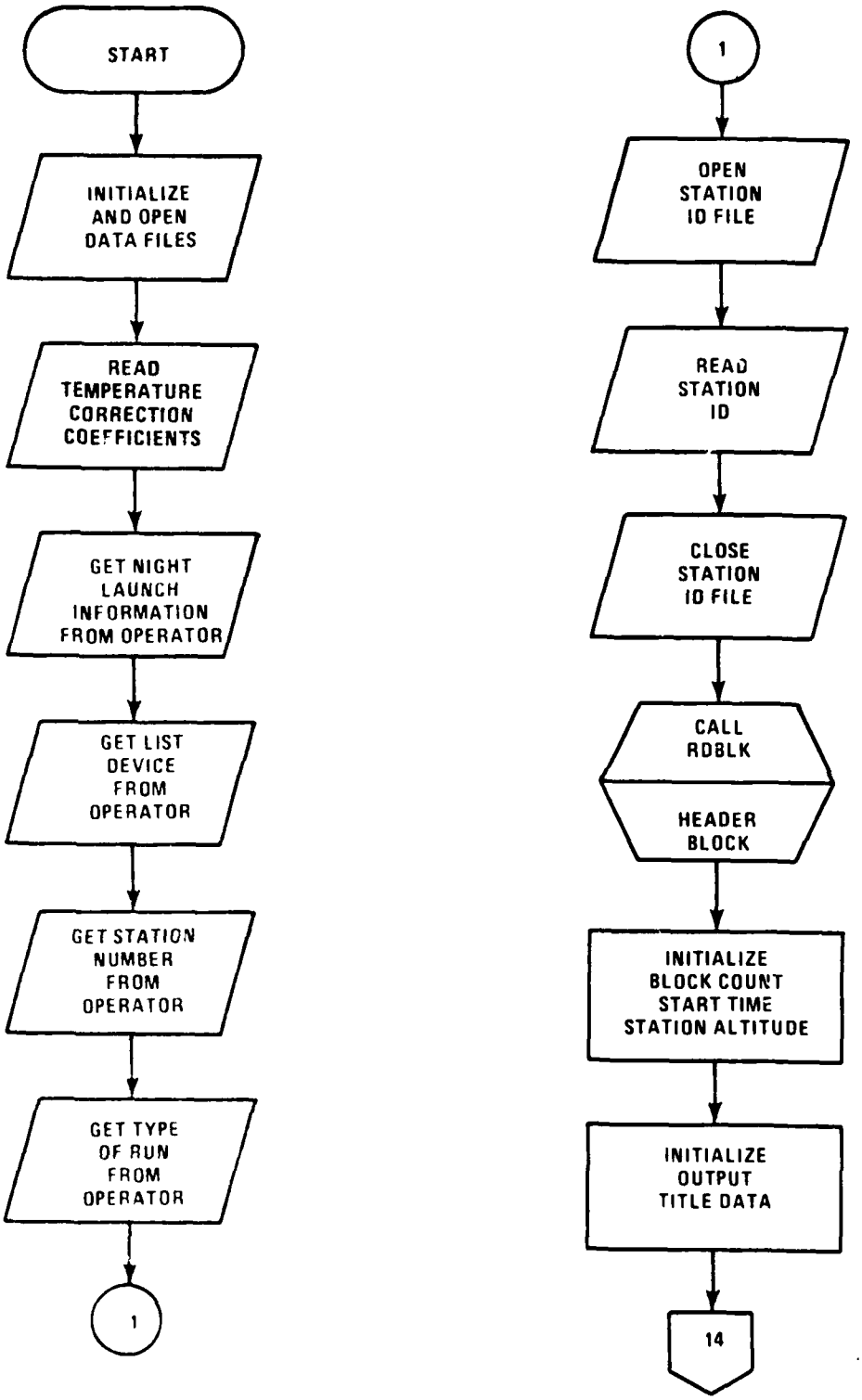
$$[I]\ [K] = [A]^{-1}\ [B]$$

$[A]^{-1}$ is calculated by SIMQ using the Gauss-Jordan inplace matrix inversion method. SIMQ returns the appropriate coefficients k_2, k_1, and k_0, which the calling routine incorporates in calculating the appropriate values.

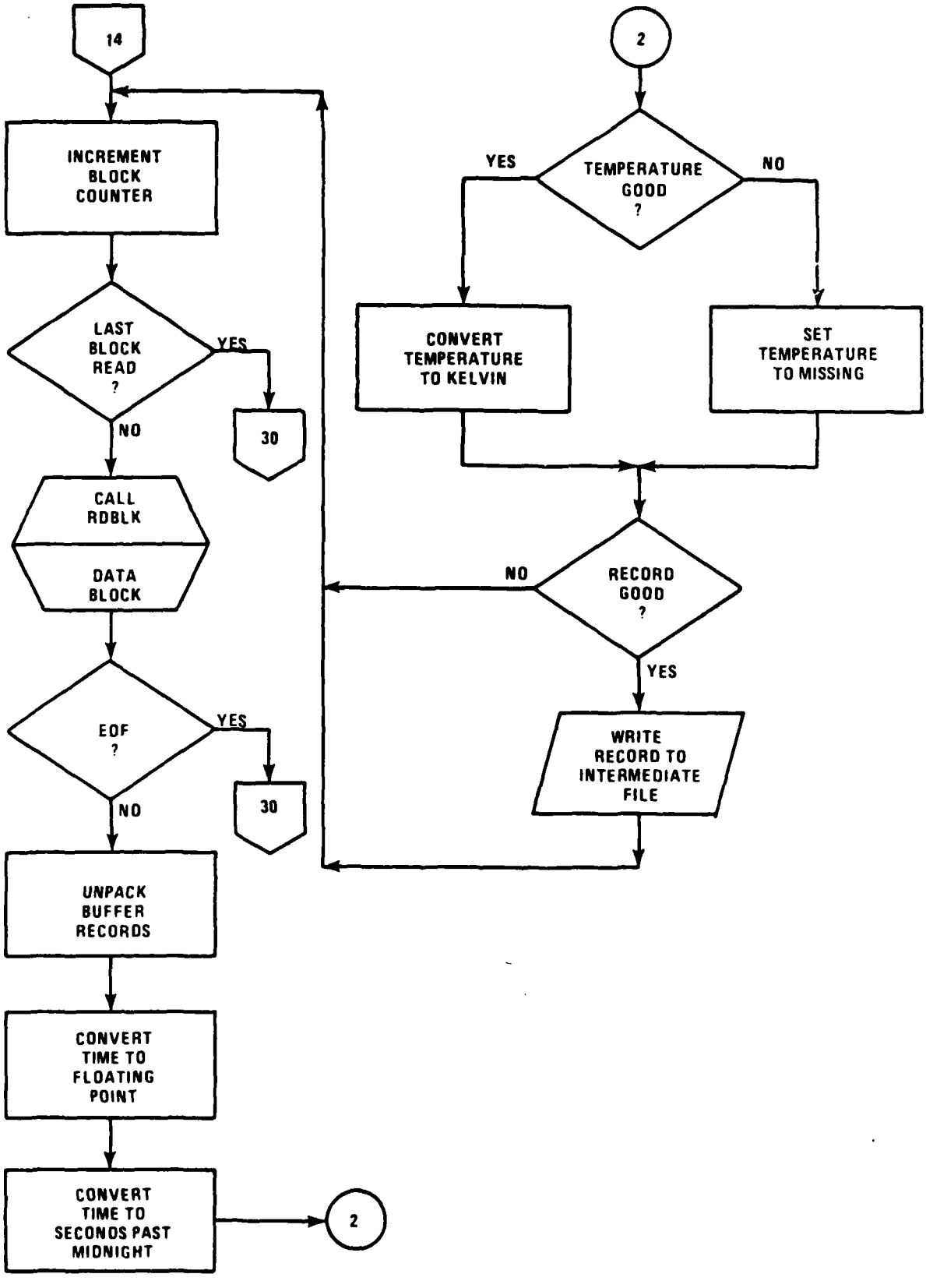
6.0 FLOWCHARTS

See the following pages.

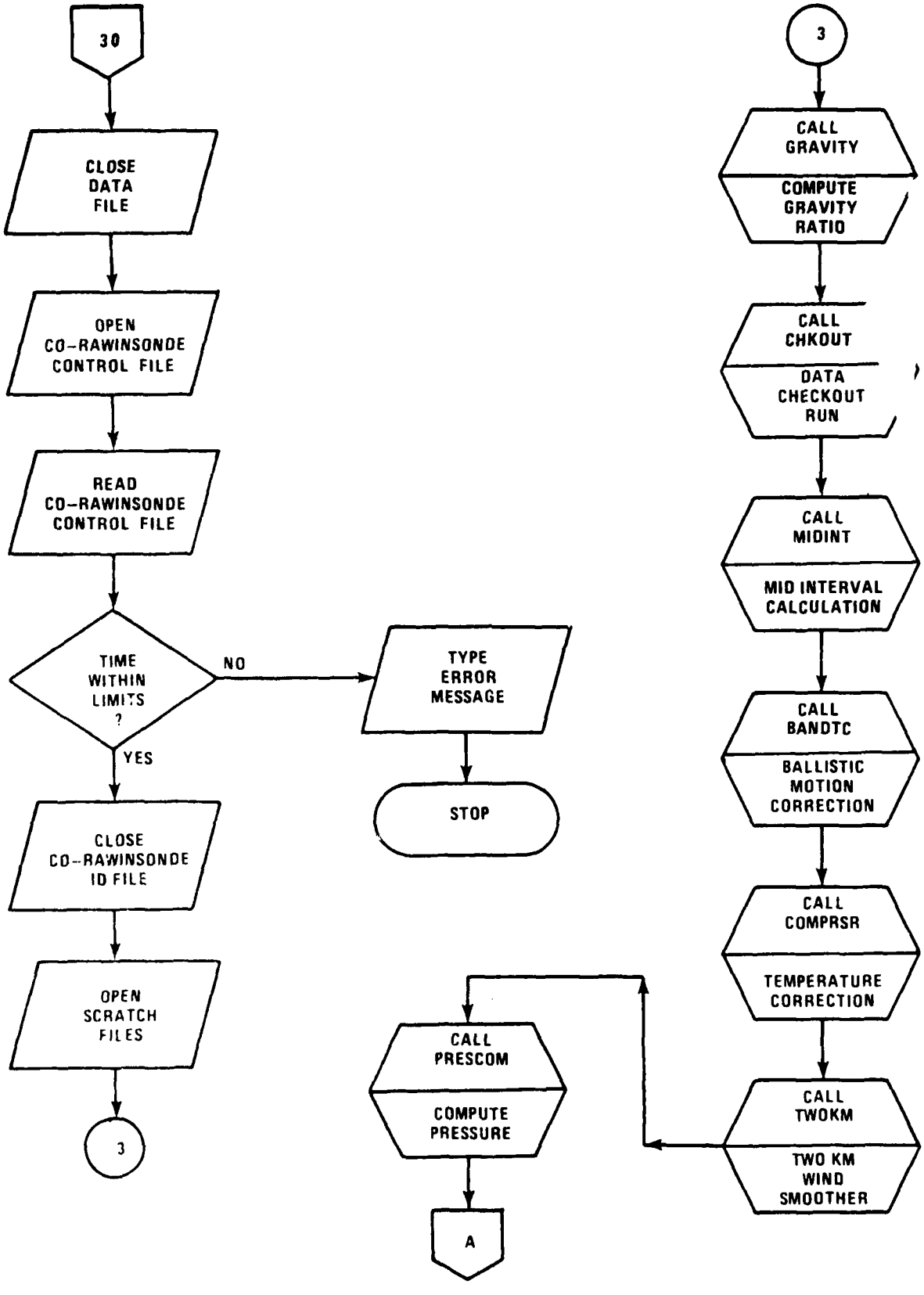
6.1.1 Main Routine - Pass 1



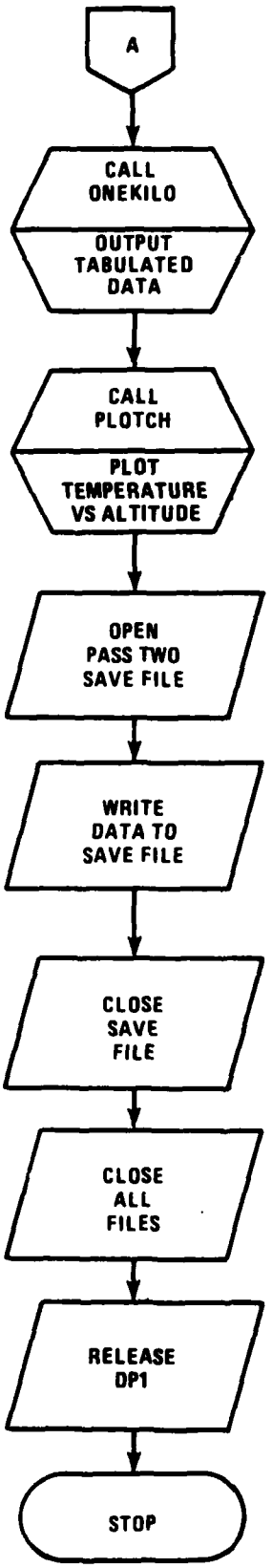
6.1.2 Main Routine – Pass 1



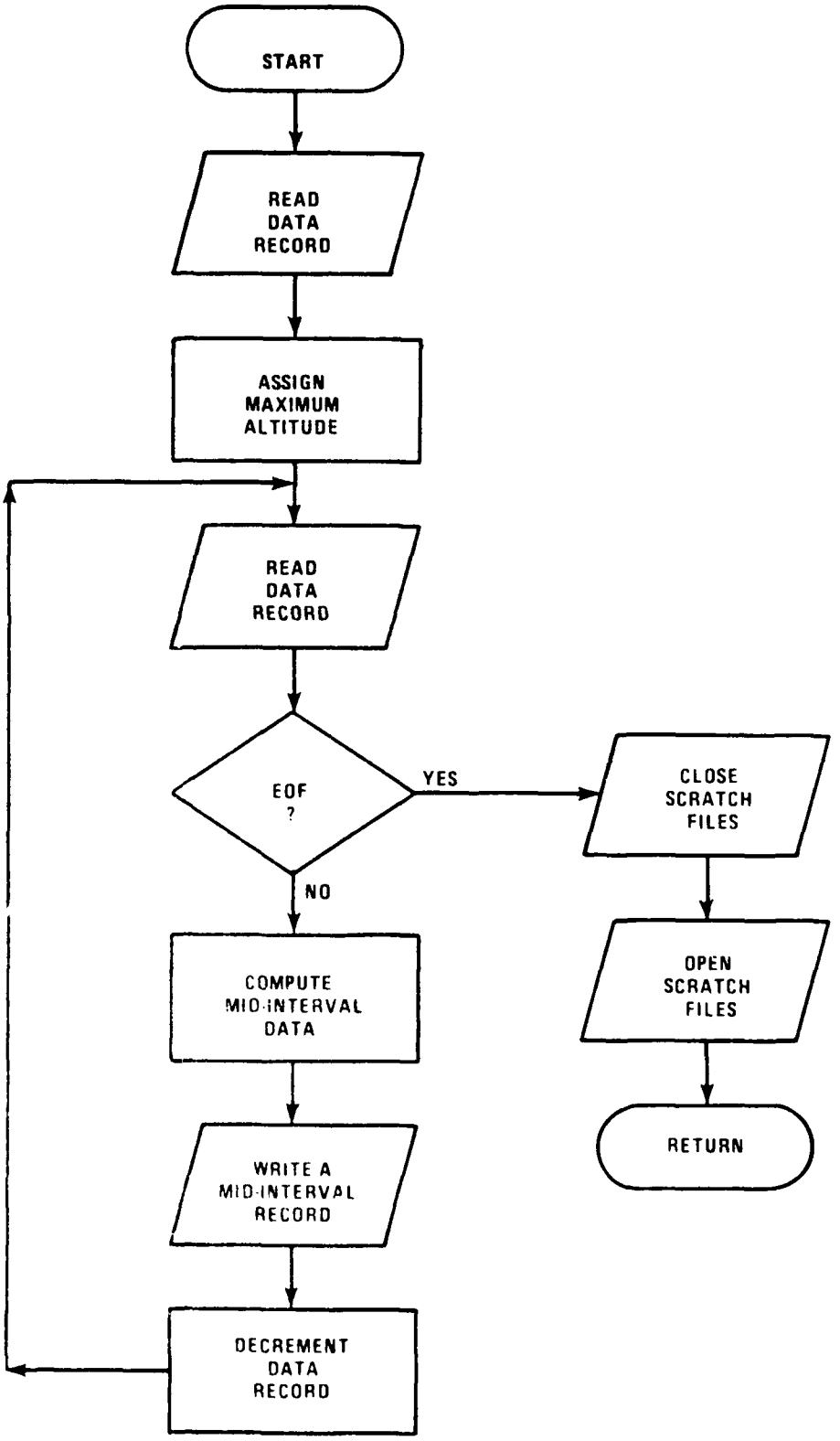
6.1.3 Main Routine – Pass 1



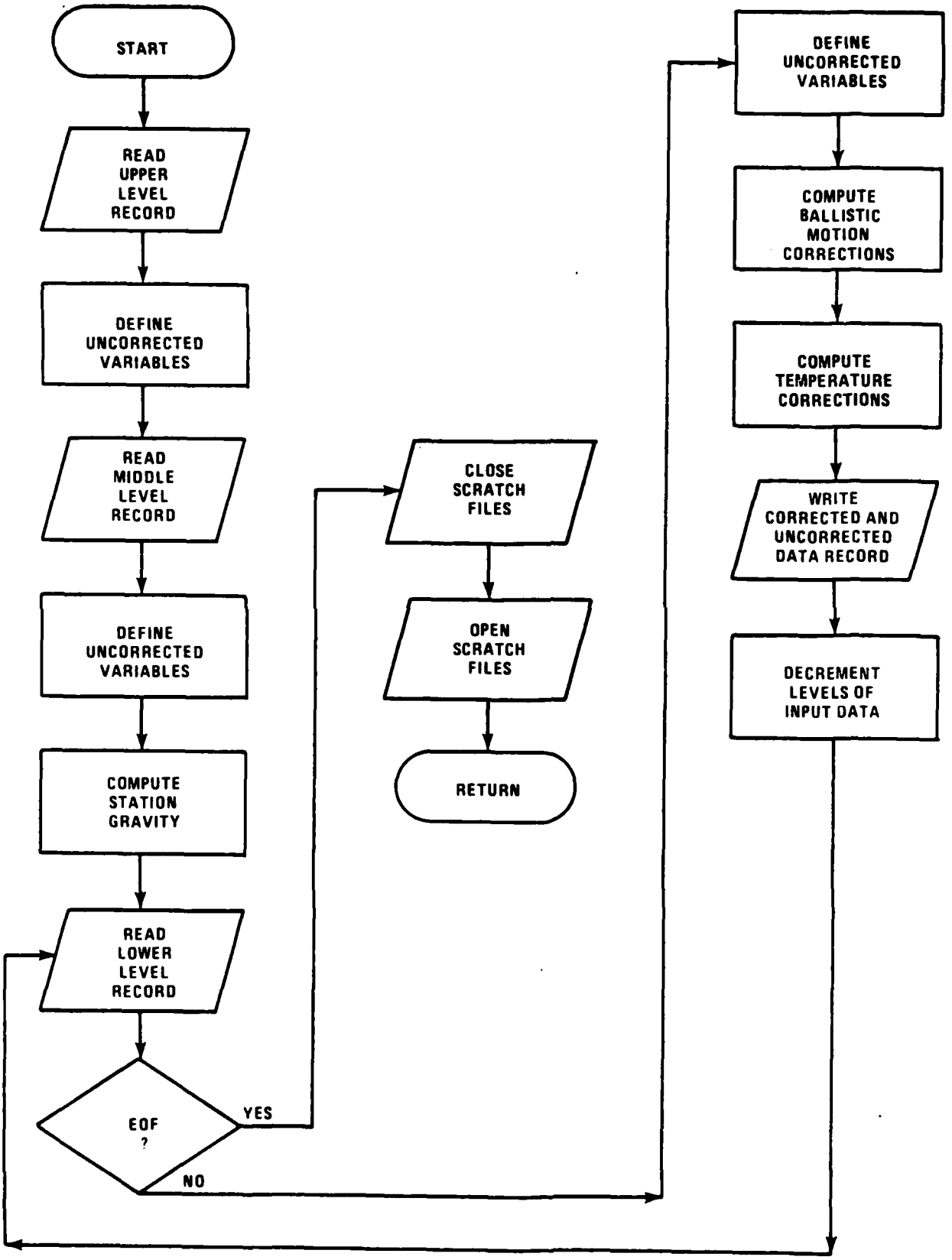
6.1.4 Main Routine – Pass 1



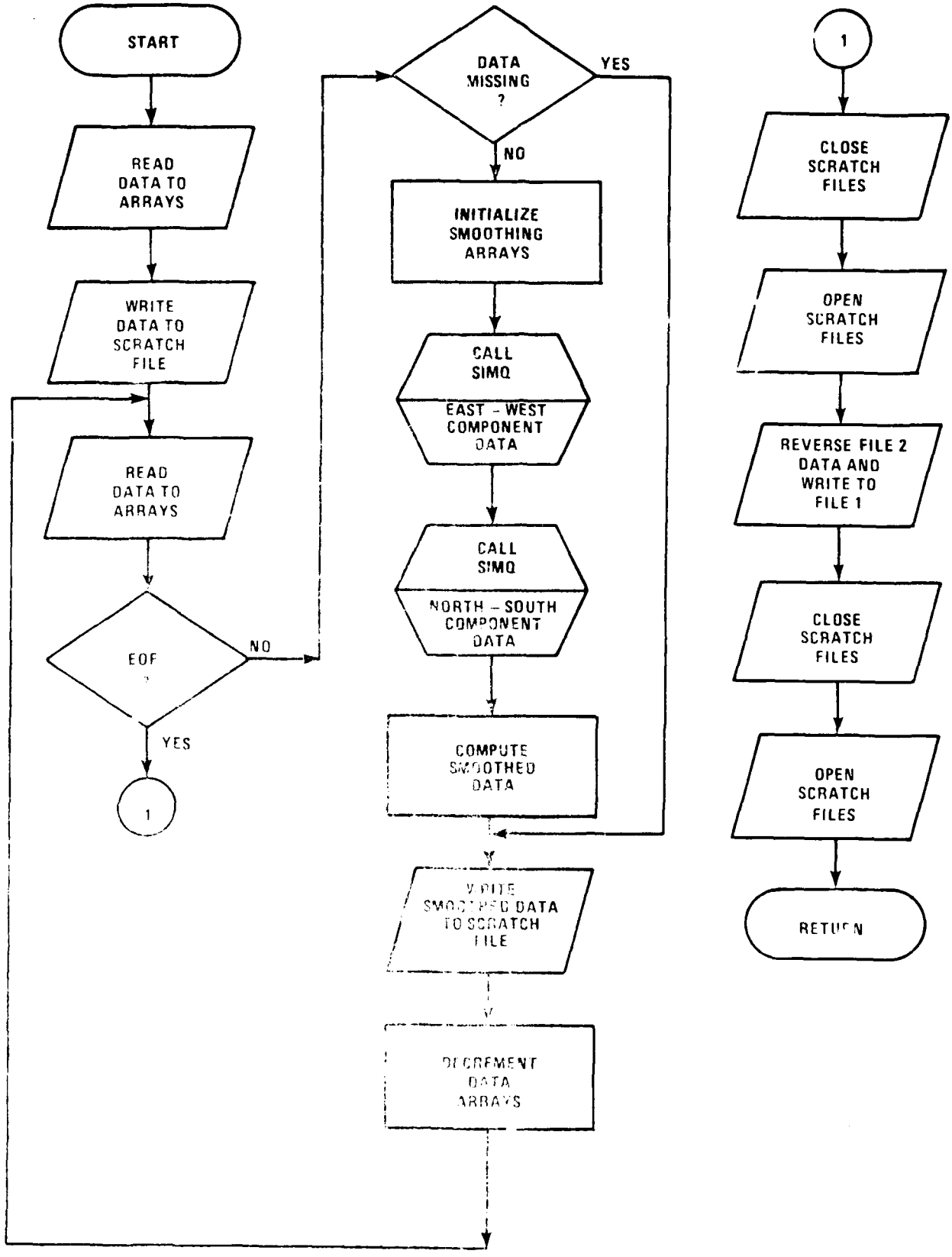
6.2 Subroutine MIDINT



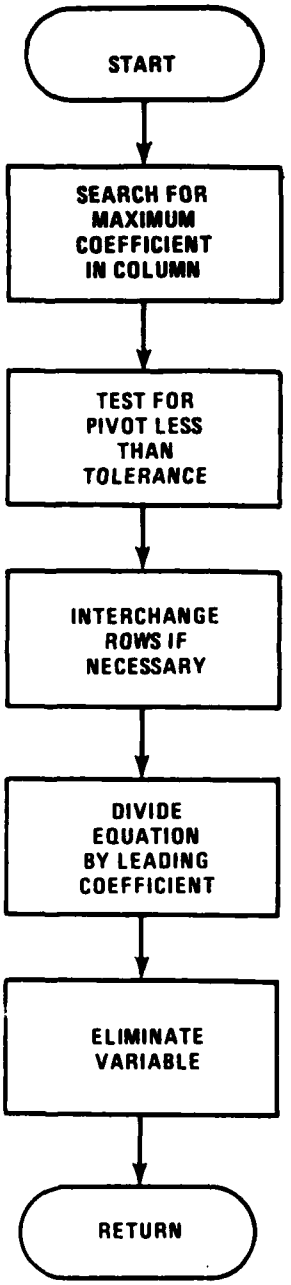
6.3 Subroutine BANDTC



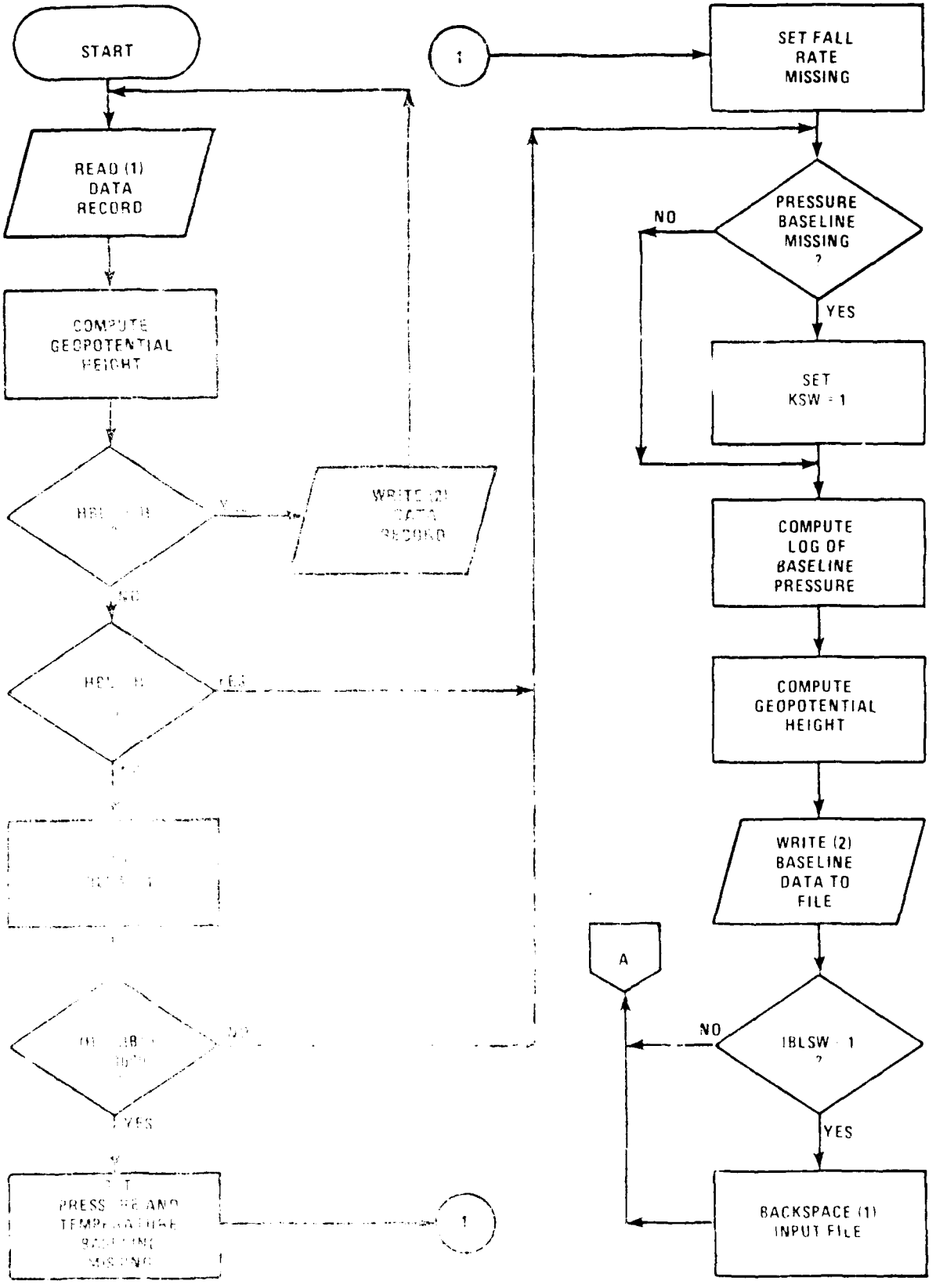
6.4 Subroutine TWOKM



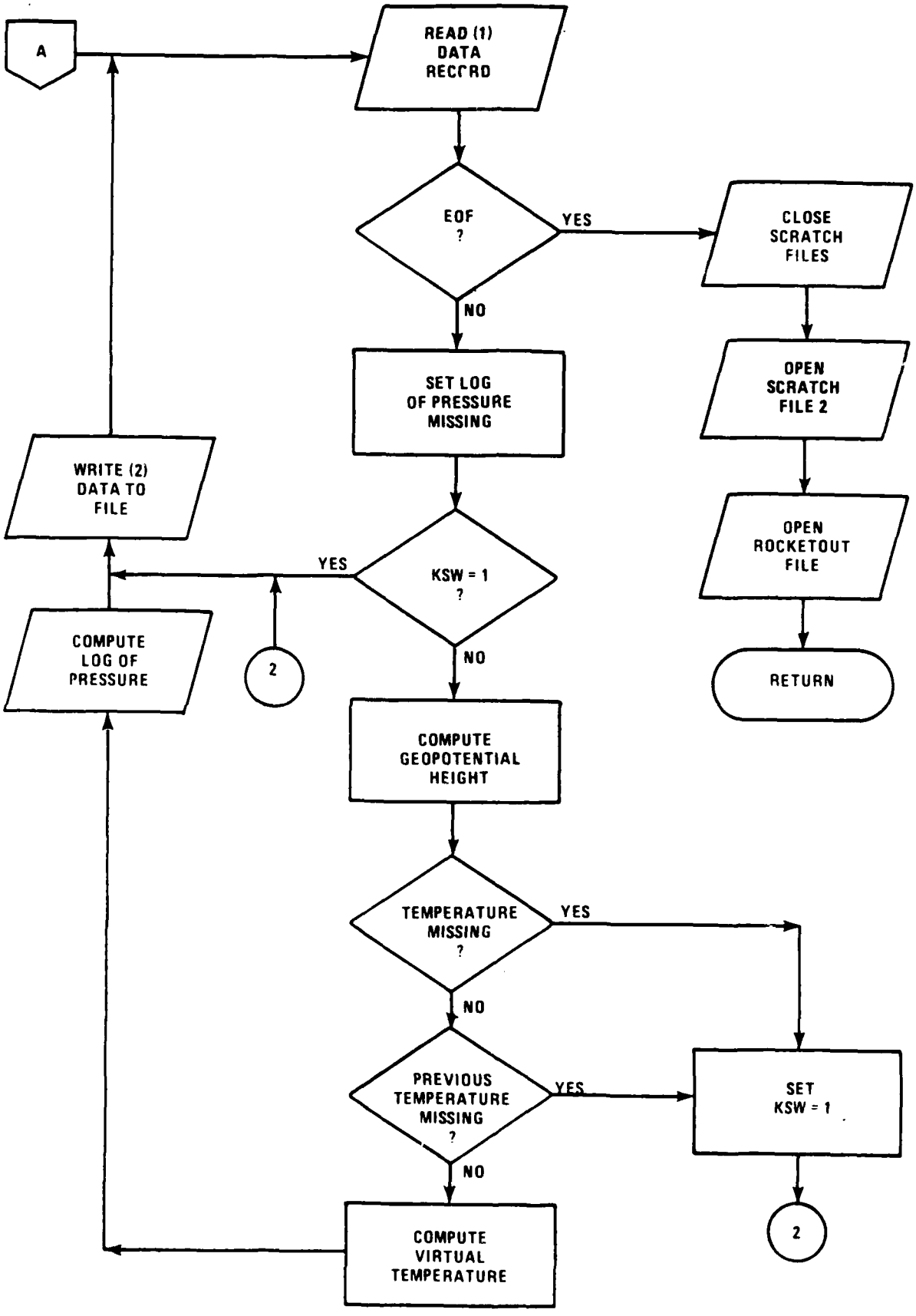
6.5 Subroutine SIMQ



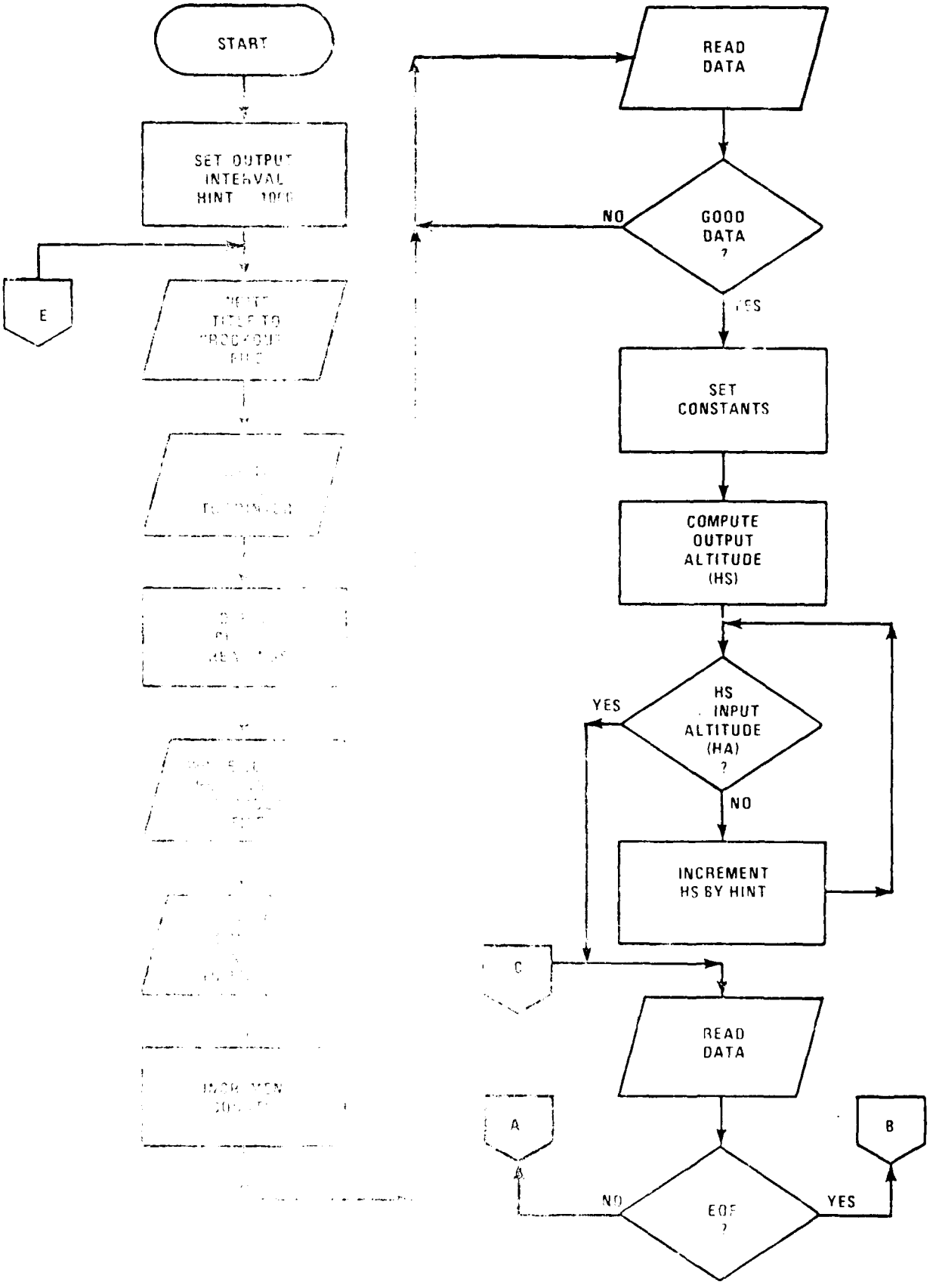
6.6.1 Subroutine PRESCOM



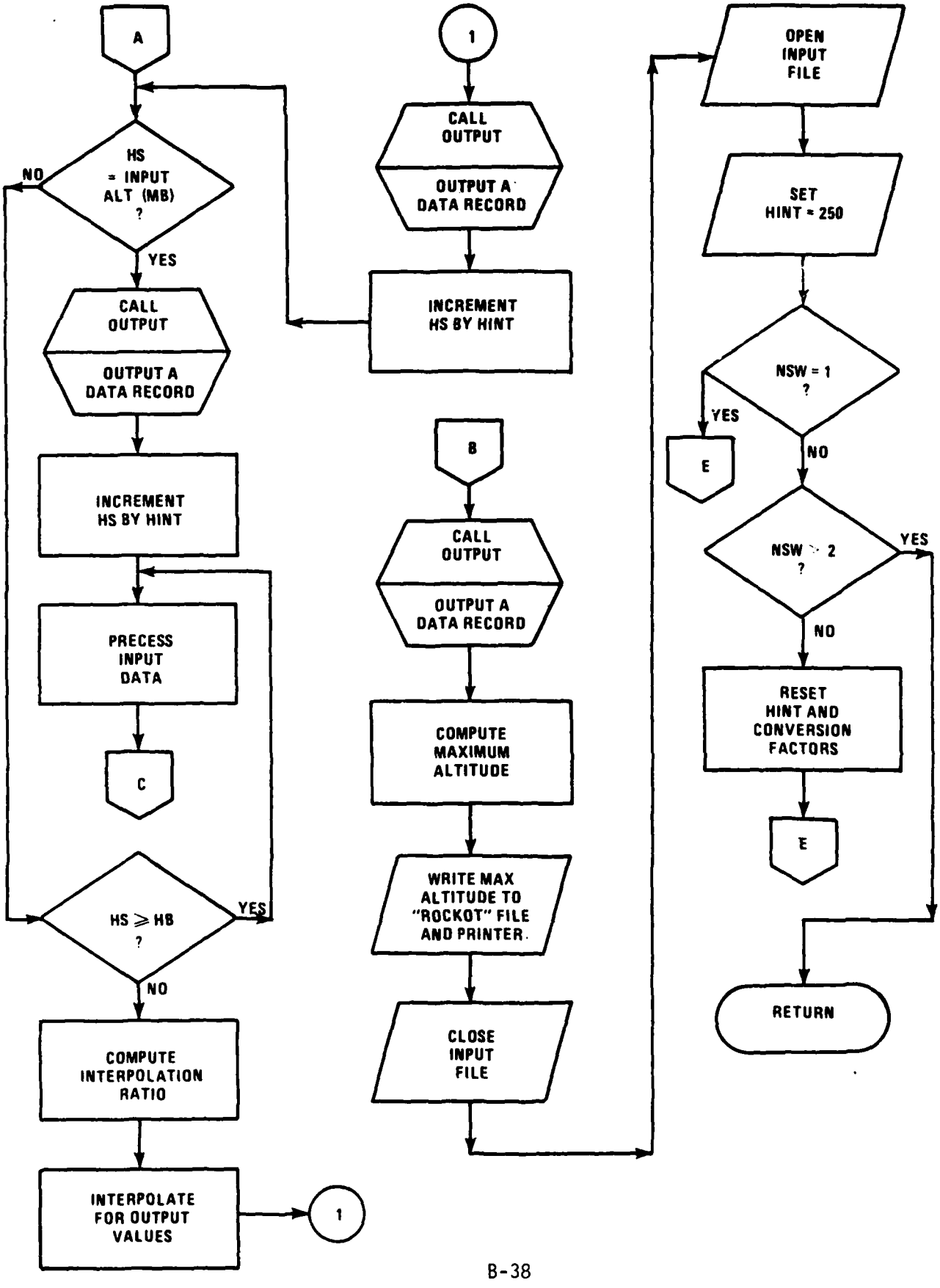
6.6.2 Subroutine PRESCOM



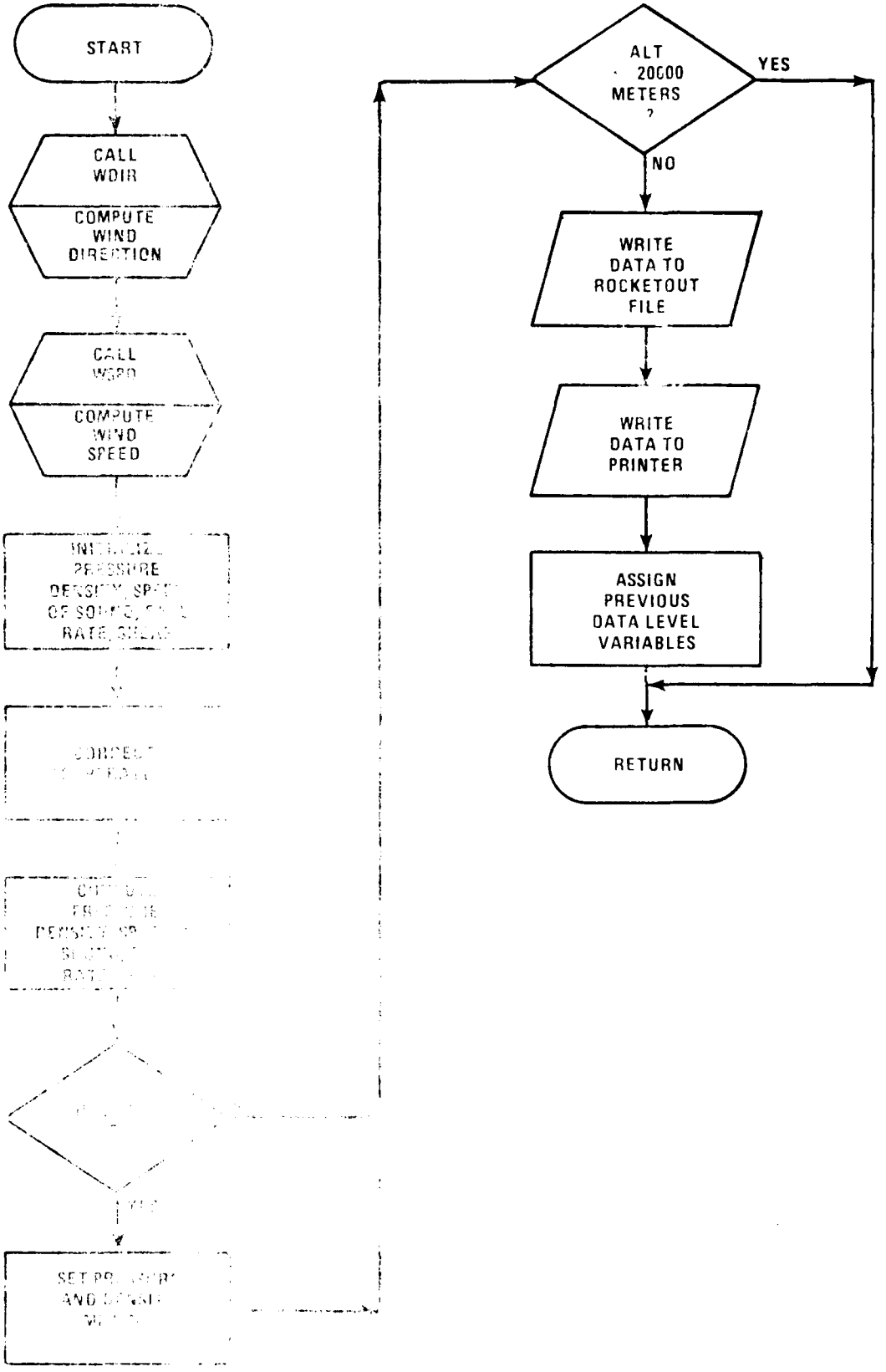
6.7.1 Subroutine ONEKILO



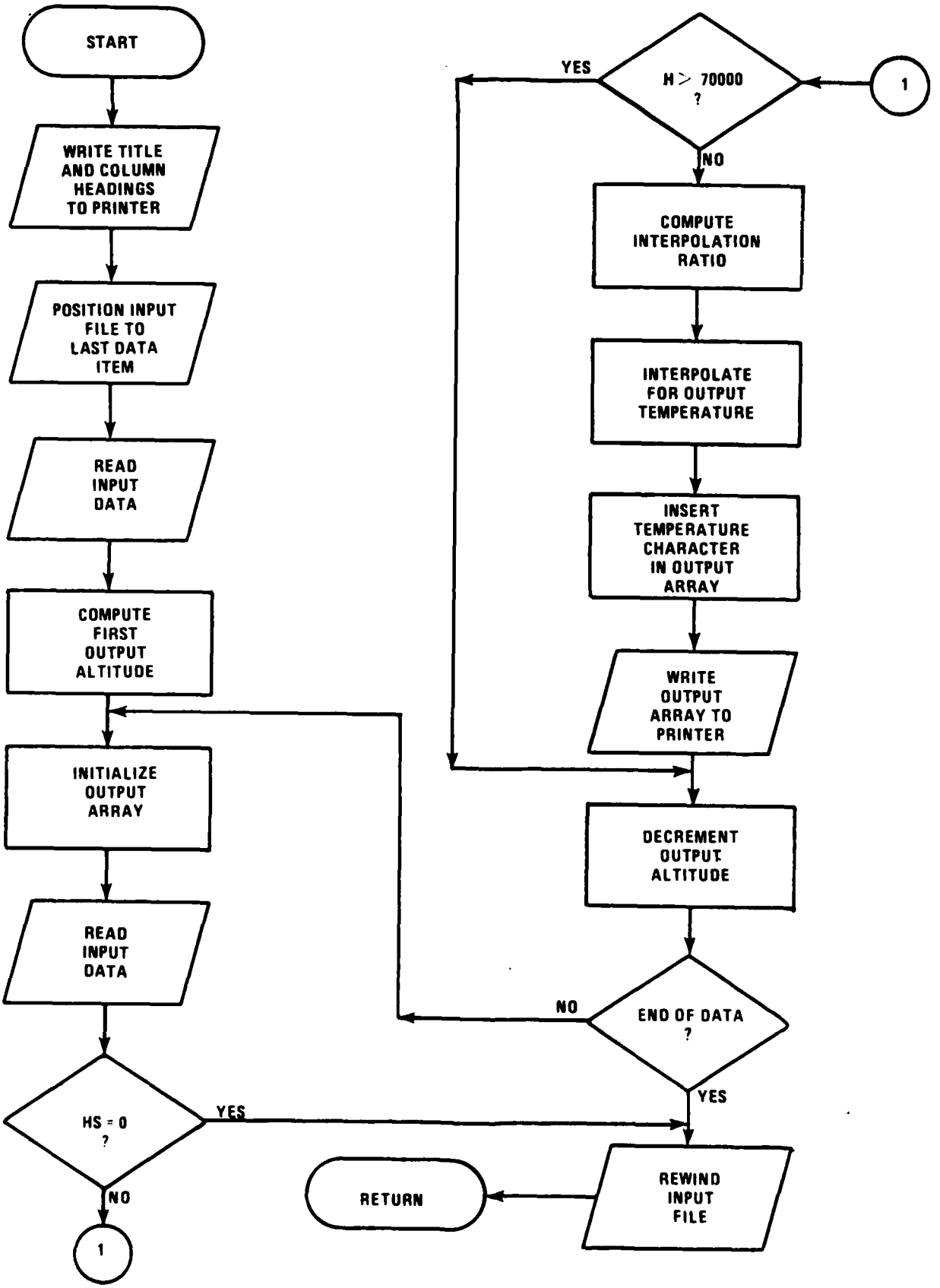
6.7.2 Subroutine ONEKILO



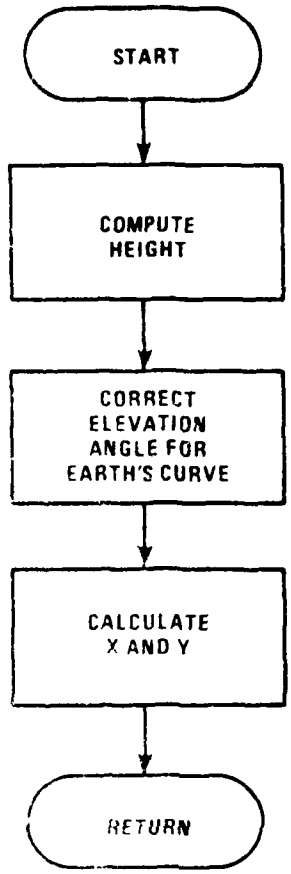
6.8 Subroutine OUTPUT



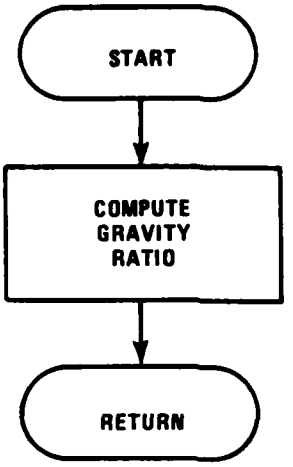
6.9 Subroutine PLOTCH



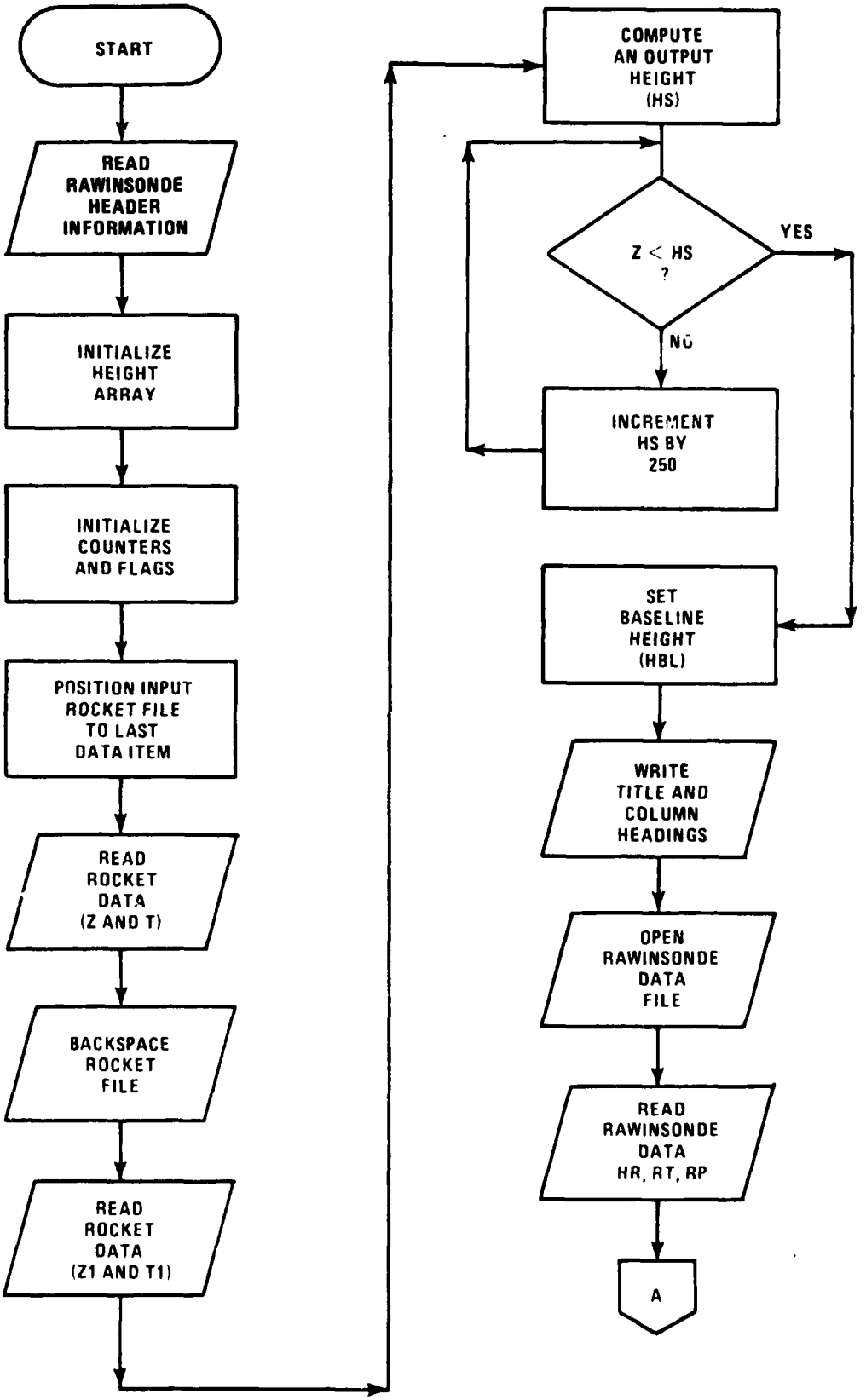
6.10 Subroutine COMPXYZ



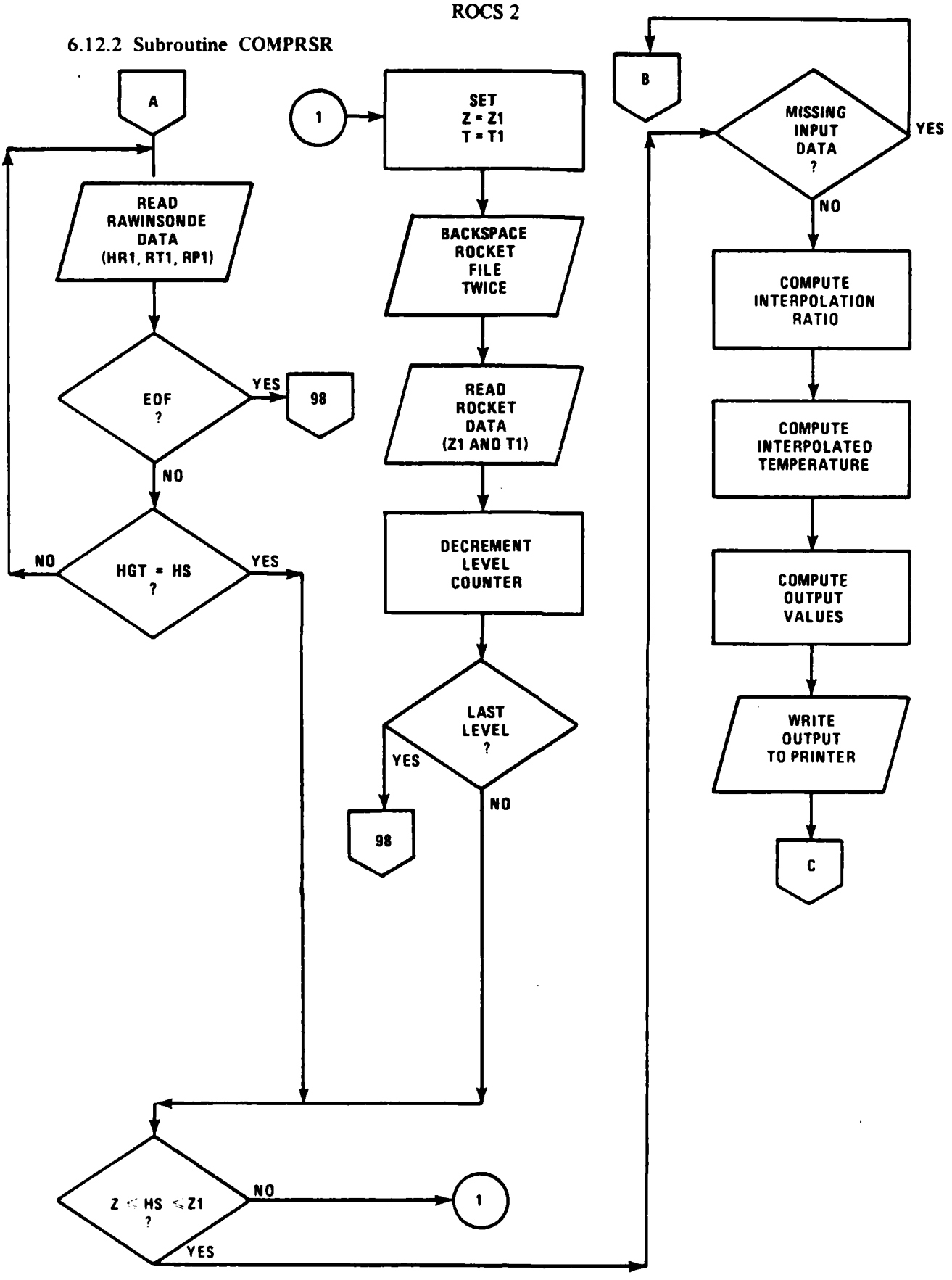
6.11 Subroutine GRAVITY



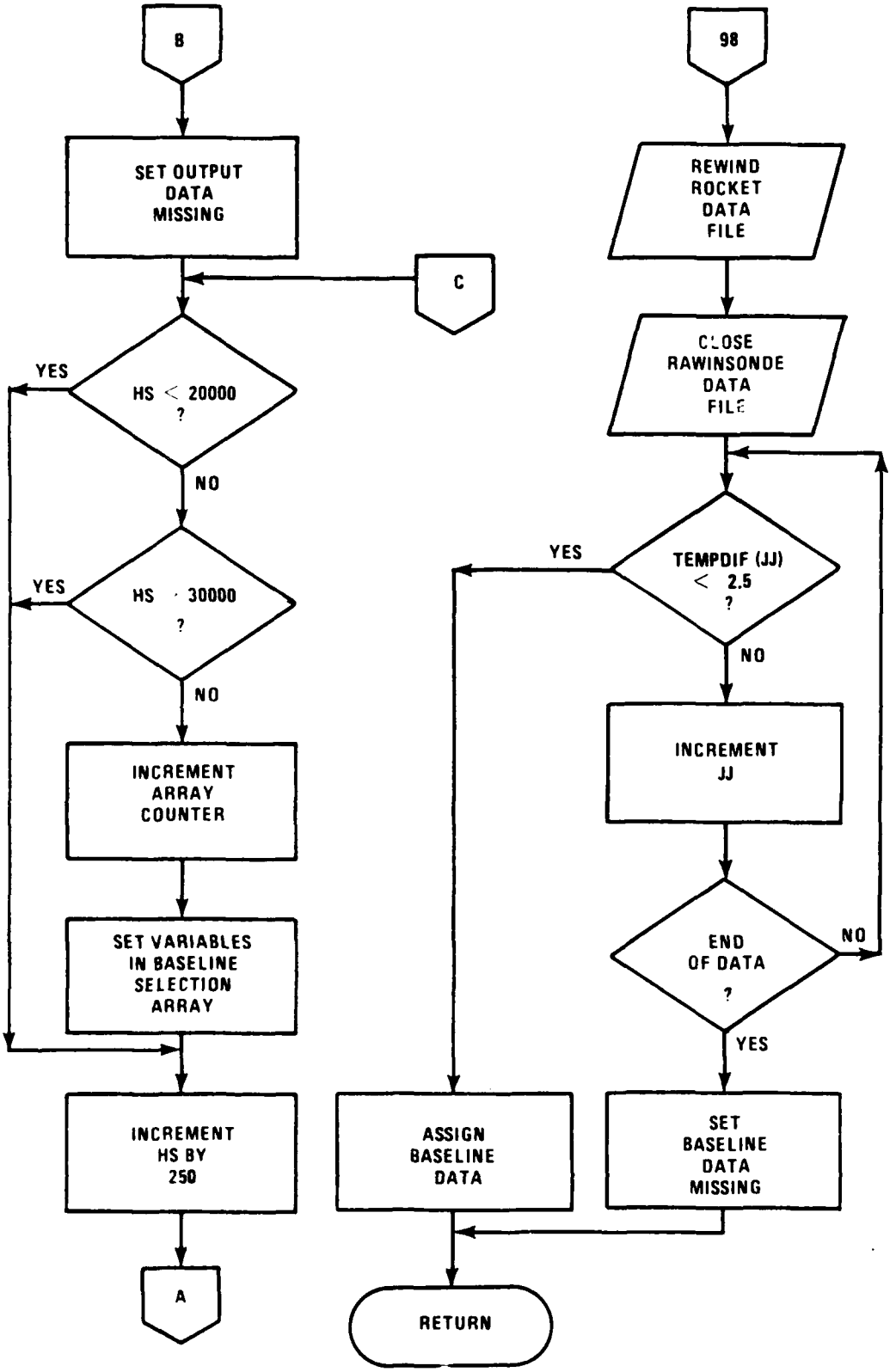
6.12.1 Subroutine COMPRSR



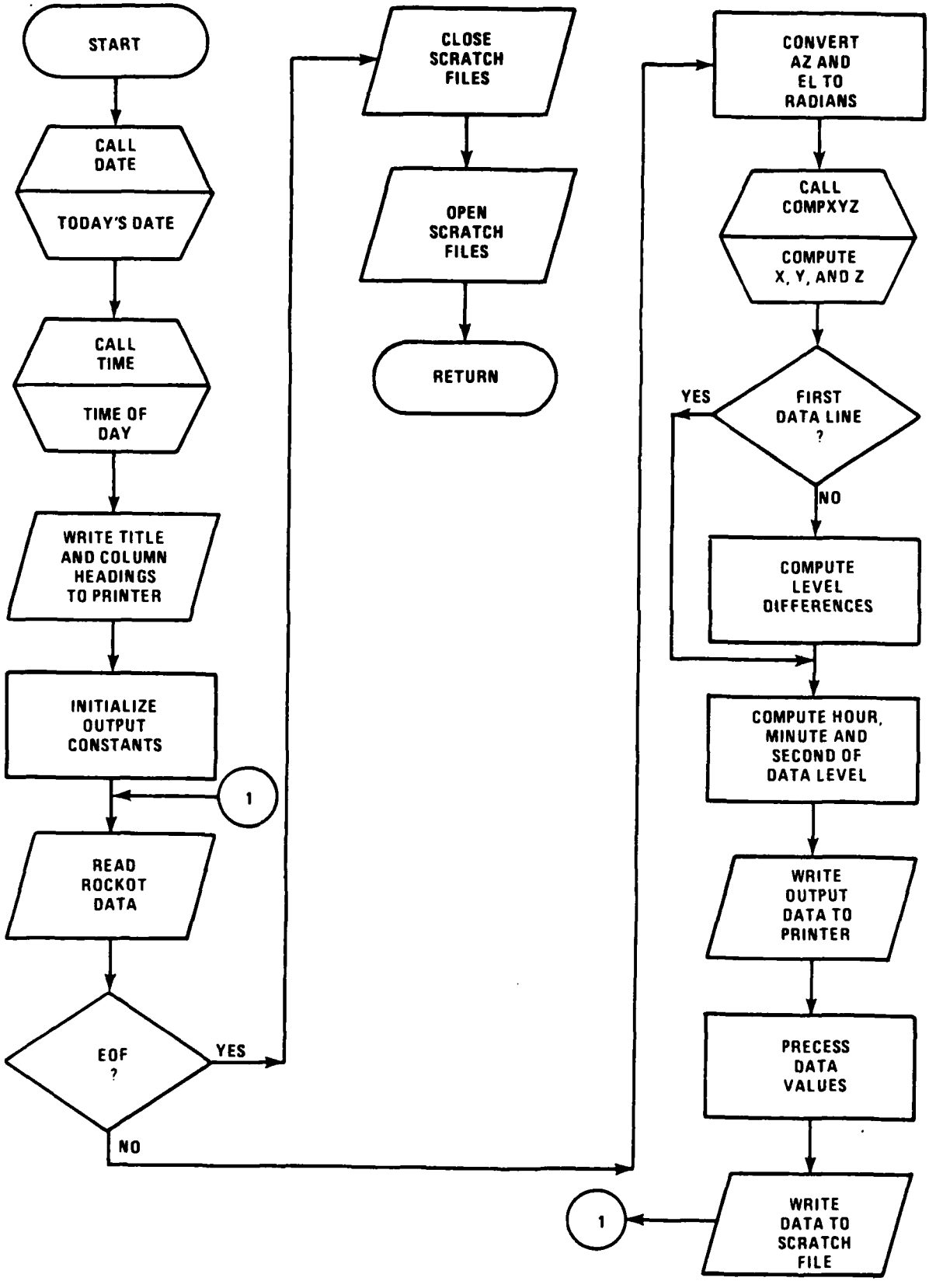
6.12.2 Subroutine COMPRSR



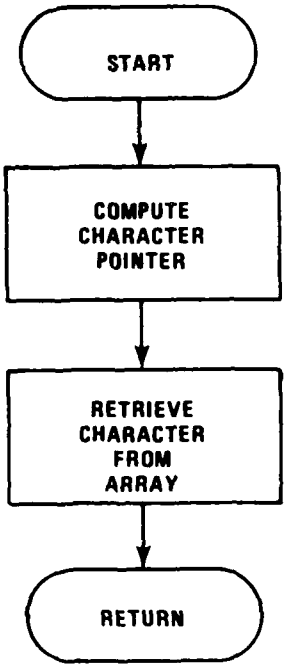
6.12.3 Subroutine COMPRSR



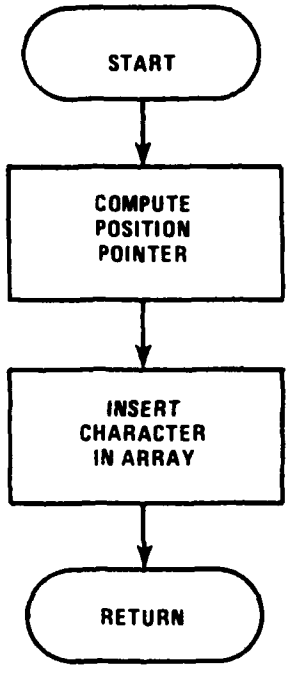
6.13 Subroutine CHKOUT



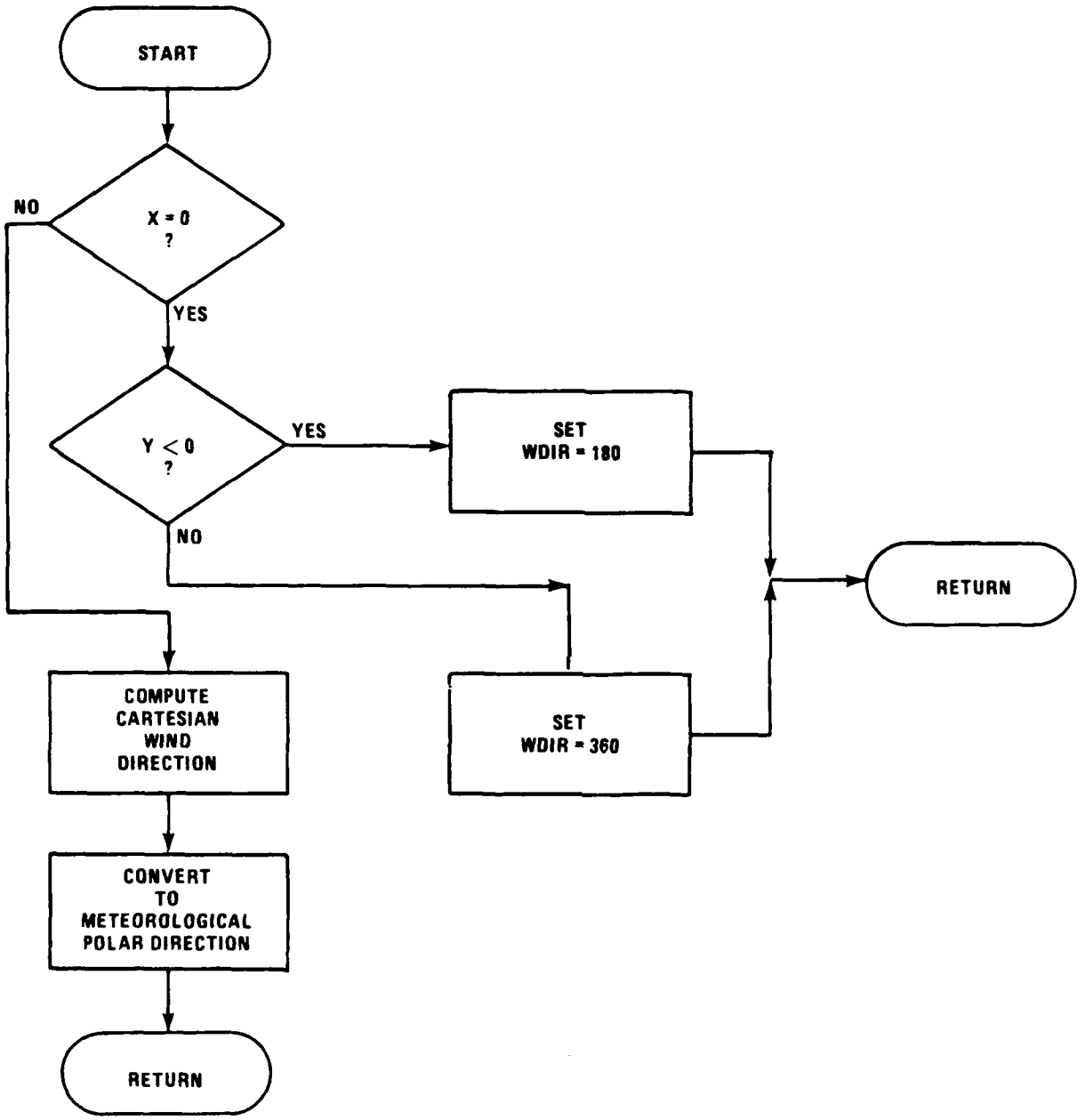
6.14 Function IGETC



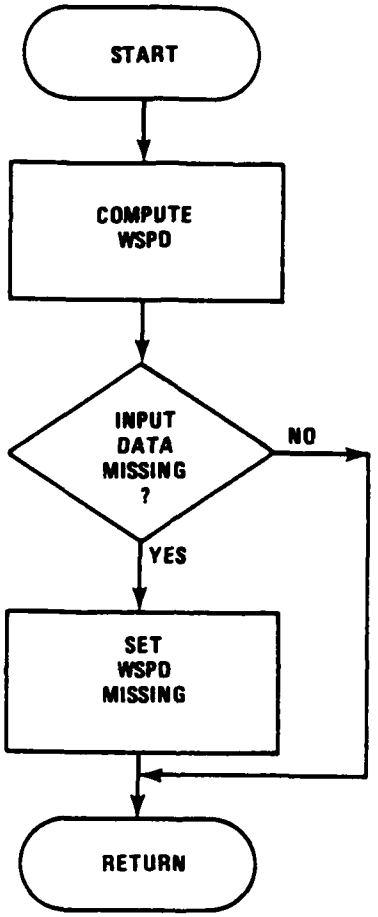
6.15 Subroutine PUTC



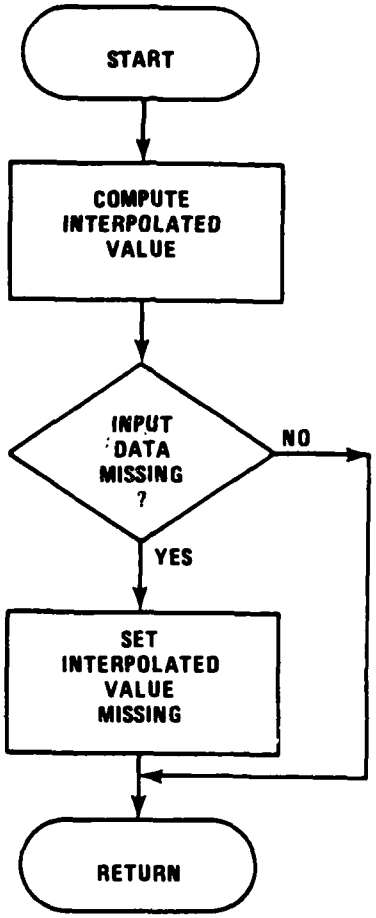
6.16 *Function WDIR*



6.17 Function WSPD



6.18 Function VALUE



7.0 MATHEMATICAL AND PHYSICAL CONSTANTS

7.1 Main Routine

57.29578 Degrees in a radian

67.442 Constant in hypsometric equation, *Smithsonian Meteorological Tables,* List 1968

6371229.315 Mean radius of the Earth, meters

65536 2^{16}, maximum number in 16 bits + 1

3600 Seconds in an hour

60 Seconds in a minute

273.15 Freezing point of water, degrees K

7.2 Subroutine MIDINT

None

7.3 Subroutine BANDTC

9.80616 Acceleration of gravity at 45 degrees latitude, meters/second^2

TABLE 1

The following table lists values of K_1, K_2, K_3, and K_4 versus altitude for the 10-mil bead thermistor using a loop mount.

Z (m)	K_1 $\left(\frac{s^2\ °K}{m^2}\right)$	K^2 (s)	K_3 $\left(\frac{1}{°K^3}\right)$	K_4 (°K) Day	K_4 (°K) Night
70×10^3	4.65×10^{-4}	12.77	18.51×10^{-10}	23.2	7.56
69	4.65	10.60	14.63	18.4	6.04
68	4.64	8.92	11.83	15.0	4.93
67	4.64	7.70	9.80	12.5	4.13
66	4.63	6.69	8.18	10.4	3.48
65	4.62	5.93	6.98	8.94	3.00
64	4.61	5.27	5.98	7.70	2.59
63	4.59	4.72	5.17	6.69	2.26
62	4.57	4.27	4.53	5.87	2.00
61	4.55	3.84	3.93	5.13	1.75
60	4.52	3.51	3.49	4.57	1.57
59	4.50	3.23	3.12	4.10	1.41

TABLE 1 (Continued)

Z (m)	K_1 $\left(\frac{s^2\ °K}{m^2}\right)$	K^2 (s)	K_3 $\left(\frac{1}{°K^3}\right)$	K_4 (°K) Day	K_4 (°K) Night
58×10^3	4.48×10^{-4}	2.95	2.78×10^{-10}	3.66	1.27
57	4.46	2.72	2.49	3.29	1.15
56	4.44	2.51	2.24	2.98	1.04
55	4.43	2.342	2.05	2.73	0.956
54	4.42	2.148	1.87	2.51	0.880
53	4.41	2.053	1.74	2.33	0.820
52	4.40	1.935	1.62	2.17	0.766
51	4.40	1.828	1.51	2.03	0.718
50	4.39	1.728	1.41	1.90	0.673
49	4.39	1.627	1.31	1.77	0.629
48	4.39	1.545	1.23	1.67	0.592
47	4.39	1.469	1.16	1.57	0.559
46	4.40	1.393	1.09	1.48	0.528
45	4.41	1.330	1.03	1.40	0.500
44	4.41	1.271	9.76×10^{-11}	1.33	0.476
43	4.42	1.212	9.24	1.26	0.452
42	4.42	1.160	8.79	1.20	0.430
41	4.43	1.111	8.35	1.14	0.410
40	4.43	1.065	7.95	1.09	0.392
39	4.44	1.019	7.53	1.03	0.372
38	4.44	0.978	7.18	0.986	0.355
37	4.45	0.940	6.85	0.943	0.341
36	4.45	0.903	6.52	0.897	0.323
35	4.46	0.868	6.22	0.858	0.311
34	4.46	0.837	5.96	0.822	0.298
33	4.47	0.804	5.68	0.785	0.285
32	4.47	0.776	5.44	0.753	0.274
31	4.48	0.749	5.22	0.722	0.263
30	4.49	0.724	5.00	0.694	0.253
29	4.49	0.700	4.79	0.666	0.243
28	4.50	0.677	4.60	0.640	0.235
27	4.50	0.656	4.42	0.615	0.225
26	4.51	0.635	4.25	0.593	0.218
25	4.52	0.616	4.09	0.572	0.210
24	4.52	0.597	3.94	0.551	0.203
23	4.52	0.580	3.81	0.533	0.197
22	4.53	0.565	3.69	0.518	0.191
21	4.54	0.550	3.58	0.502	0.185
20	4.55	0.535	3.47	0.487	0.180

7.4 Subroutine TWOKM

None

7.5 Subroutine SIMQ

None

7.6 Subroutine PRESCOM

None

7.7 Subroutine ONEKILO

1000	Output interval, meters and feet
250	Output interval, meters

7.8 Subroutine OUTPUT

348.38	Gas constant for dry air with pressure in millibars and density in grams/cubic meter, combined with conversion factors
331.45	Speed of sound at zero degree Celsius, meters/second
273.15	Freezing point of water, degrees K

7.9 Subroutine PLOTCH

1000	Output interval, meters
70000	Maximum output altitude

7.10 Subroutine COMPXYZ

0.9144	Meters/yard
2.2	Constant used in correcting elevation angle for the Earth's curvature

7.11 Subroutine GRAVITY

57.29578	Degrees in a radian
0.0026373 0.0000059	Gravity ratio constants from *Smithsonian Meteorological Tables*, page 488, equation 1, List 1951

7.12 Subroutine COMPRSR

0.3048	Conversion factor for meters to feet
273.15	Freezing point of water, degrees K

8.0 BIBLIOGRAPHY

1. List, R. J., "Smithsonian Meteorological Tables," Smithsonian Institution, Washington, D.C., Sixth Edition. Smithsonian Miscellaneous Collections, Vol. 114, 1958.

2. Eddy, et al., "Determiniation of Winds from Meteorological Rocketsondes," University of Texas Report Number 2, University of Texas, November 1965.

3. Henry, R. M., Paper presented to the American Meteorological Society Conference on "High Altitude Meteorology Atmosphere Space Weather," Houston, Texas, 27-31 March 1967.

4. Krumins, M. V. and Lyons, W. C., "Corrections for the Upper Atmosphere Temperatures Using a Thin Film Loop Mount," NOLTR 72-152, Naval Ordnance Laboratory, 22 June 1972.

5. Luers, J. K., "A Method of Computing Wind Density, Temperature, Pressure and Their Associated Errors from the High Altitude Robin Sphere Using an Optimum Filter," AFCRL-70-0366, July 1970. Final report on AFCRL Contract with the University of Dayton Research Institute.

6. Gustafson, A. F., "The Error in Rawin Computations Due to Neglecting the Earth's Curvature," Bull., AMS, Vol. 35, No. 7, pp. 295-300, September 1954.

ATTACHMENT 1

INPUT DATA FILE, DUMP AND BINARY

TEST NUMBER: 00000 ASCENT NUMBER: 4029 SONDE TYPE: 10H
NUMBER OF POINTS SMOOTHING: 120 SMOOTHED OUTPUT RATE: 15
HARDCOPY OPTION: BOTH HARDCOPY OUTPUT RATE: 15 SCROLLED OUTPUT RATE: 10
STATION ALTITUDE: 16 STATION PRESSURE: .0 STATION TEMPERATURE: .0
MSS SONDE ID: 4566 CHANNEL 1 ID: 4566 CHANNEL 3 ID: 4566

SENSOR COEFFICIENTS:	A	B	C
CHANNEL 1:	-5.16500	2123.50000	60.20499
CHANNEL 3:	-5.16500	2123.50000	60.20499

HYGRISTOR SELECTION: 13 R33: .000

XLOGZ DATA

.30103	.60206	.77815	.90308	.99999	1.17600
1.30100	1.47710	1.69890	1.84500	1.90300	1.95420
1.99990	2.17600	2.30100	2.47710	2.60200	2.77810
2.90300	2.99990	3.17600	5.00000	.00000	.00000

RATIO DATA

.93516	.91877	.90308	.88778	.87312	.83852
.80689	.75078	.66027	.59099	.56187	.53613
.51256	.42336	.36372	.28865	.24349	.19185
.16296	.14466	.11877	.07530	.00000	.00000

AN/AMQ-9 SONDE ID: ISTRUT IDT: 25.0 FCT: 25.0 TCT: 25.0 HYGRISTOR SEL: 13
RELEASE DATE: 1/18/84 RELEASE TIME: 15:15:34: 0 BLOCKS WRITTEN: 15

MSR DATA DUMP

	SOFTWR STATUS	TIME	HARDW1 STATUS	HARDW2 STATUS	X	Y	Z	SLANT RANGE	GROUND RANGE	ALTITUDE	AZ	EL	TEMP1	RN	TEMP2
	000170	0	010512	002041	999999.00	999999.00	999999.00	999999.00	999999.00	999999.00	122.01	-1.62	-11.0	-6.4	-9.9
	000170	30	004312	002041	999999.00	999999.00	999999.00	999999.00	999999.00	999999.00	102.87	72.09	-69.3	999.9	-69.3
	000170	60	004312	002041	999999.00	999999.00	999999.00	999999.00	999999.00	999999.00	99.60	71.91	-69.3	999.9	-69.3
	000170	90	004312	002041	999999.00	999999.00	999999.00	999999.00	999999.00	999999.00	98.13	69.70	32.3	-36.1	33.9
	001170	120	004312	002041	397653.40	-52845.69	916011.40	999999.00	401149.60	926214.00	97.57	66.35	-75.8	-64.5	999.9
	001170	150	004312	002041	32790.87	-4507.65	76353.25	77750.25	33099.16	76436.25	97.83	64.80	-75.8	-64.5	999.9
	001170	180	004312	002041	33289.36	-4512.53	67236.69	75161.62	33593.68	67322.06	97.72	63.45	-11.5	-12.4	-13.0
	001170	210	004312	002041	33779.44	-3937.24	64620.06	73022.31	34007.99	64707.48	96.65	62.24	-15.7	-15.8	-14.7
	001170	240	004312	002041	34240.57	-3763.81	62346.33	71229.19	34446.68	62435.93	96.27	61.08	-8.5	-6.3	-6.0
	001170	270	004312	002041	34443.41	-3250.43	60347.19	69560.37	34596.32	60437.52	95.39	60.17	-.0	1.3	.5
	001170	300	004312	002041	34334.13	-2406.48	58497.34	67871.31	34418.25	58586.82	94.01	59.53	-3.3	-.8	-.6
	001170	330	004312	002041	34136.53	-1591.12	56895.21	66369.12	34173.47	56983.55	92.67	59.01	2.5	3.0	.4
	001170	360	004312	002041	33948.32	-734.05	55379.52	64960.62	33956.14	55466.82	91.24	58.49	-.4	-.6	-1.7
	001170	390	004312	002041	33632.67	67.58	53968.83	63590.64	33632.63	54054.59	89.88	58.07	-3.5	-3.8	-5.8
	041170	420	004312	002041	33345.07	530.60	52748.86	62406.68	33349.18	52833.27	89.09	57.70	-1.7	1.1	2.7
	001170	450	004312	002041	33307.10	1525.31	51555.36	61397.20	33341.89	51639.74	87.38	57.11	5.0	3.8	999.9
	001170	480	004312	002041	33683.19	2577.17	50461.66	60725.22	33781.53	50548.18	85.62	56.20	-5.0	-5.4	-5.1
	001170	510	004312	002041	34106.76	3286.71	49428.64	60143.50	34264.62	49517.50	84.50	55.27	-3.3	-1.8	-1.5
	001170	540	004312	002041	33851.94	4366.93	48501.46	59307.41	34132.34	48589.49	82.65	54.86	-4.3	-5.1	-7.2
	001170	570	004312	002041	33647.04	5207.17	47613.45	58534.25	34047.45	47701.29	81.20	54.43	-6.4	-5.6	-8.9
	041170	600	004312	002041	33773.45	5838.05	46745.81	57964.46	34274.19	46834.75	80.19	53.75	-9.7	-9.4	-7.9
	001170	630	004312	002041	34100.31	6209.82	45999.85	57596.45	34660.98	46090.68	79.68	53.00	-5.3	-5.8	-6.2
	001170	660	004312	002041	34776.95	6193.50	45258.81	57411.94	35324.02	45352.96	79.90	52.03	-6.2	-5.9	-6.4
	001170	690	004312	002041	35622.87	6193.55	44489.32	57329.08	36157.15	44587.71	80.14	50.90	-9.3	-9.4	-10.5
	001170	720	004312	002041	36458.37	6092.57	43749.25	57289.21	36963.80	43871.69	80.51	49.82	-13.4	-14.1	-14.2
	001170	750	004312	002041	37314.21	6139.77	43101.87	57339.24	37815.85	43209.04	80.66	48.74	-13.9	-14.8	999.9
	001170	780	004312	002041	38199.36	6330.43	42440.21	57449.24	38720.24	42552.32	80.59	47.62	-14.8	-14.7	-14.2
	041170	810	004312	002041	39107.69	6758.04	41786.62	57629.64	39687.19	41904.14	80.20	46.48	-14.5	-13.7	-13.8
	001170	840	004312	002041	40229.84	7316.12	41096.74	57923.12	40869.55	41221.19	79.69	45.14	-17.6	-18.7	-20.5
	001170	870	004312	002041	41487.08	7617.90	40558.22	58516.27	42180.57	40690.32	79.60	43.88	-24.3	-24.2	-24.2
	001170	900	004312	002041	42767.70	7793.93	40088.23	59134.28	43471.94	40228.21	79.67	42.68	-25.2	-24.8	-24.3
	001170	930	004312	002041	44226.54	8249.93	39475.23	59852.48	44989.27	39624.78	79.43	41.26	-24.3	-24.8	-26.9
	041170	960	004312	002041	45456.08	8662.94	38985.74	60507.57	46274.04	39143.66	79.21	40.11	-30.7	-31.1	-32.6
	001170	990	004312	002041	46615.38	9081.65	38465.71	61115.11	47491.59	38631.80	78.98	39.01	-33.5	-32.6	-33.9
	041170	1020	004312	002041	47761.71	9623.54	37952.35	61758.79	48721.38	38126.86	78.61	37.92	-37.5	-37.0	-37.2
	041170	1050	004312	002041	48840.92	10266.72	37520.50	62438.81	49908.12	37703.37	78.13	36.94	-37.7	-37.9	-38.2
	001170	1080	004312	002041	49876.11	10931.50	37036.44	63077.68	51059.78	37227.63	77.64	35.96	-41.9	-41.8	-41.0
	001170	1110	004312	002041	50744.33	11538.70	36655.86	63653.35	52039.43	36854.24	77.19	35.16	-42.1	-42.2	-42.9
	001170	1140	004312	002041	51740.47	12261.12	36237.42	64346.93	53173.19	36444.33	76.67	34.27	-43.6	-43.0	-42.9
	001170	1170	004312	002041	52768.51	12696.13	35919.41	65083.61	54274.16	36134.75	76.47	33.50	-44.8	-44.6	-44.0
	001170	1200	004312	002041	53723.52	13470.91	35401.62	65733.75	55386.48	35625.20	75.92	32.59	-45.1	-44.9	-45.2
	001170	1230	004312	002041	54906.71	14067.00	34965.32	66597.00	56679.82	35199.74	75.63	31.67	-50.4	-50.7	-50.6
	001170	1260	004312	002041	55699.53	14341.61	34738.14	67192.44	57516.06	34979.39	75.56	31.13	-49.9	-49.7	-50.1
	001170	1290	004312	002041	56787.14	14717.10	34421.31	68015.87	58662.99	34672.05	75.47	30.40	-51.2	-50.4	-49.5
	001170	1320	004312	002041	57872.12	15088.93	34112.87	68851.31	59806.60	34373.29	75.39	29.70	-49.3	-48.7	-49.3
	001170	1350	004312	002041	58983.82	15629.26	33617.07	69666.56	61019.20	33887.98	75.16	28.85	-49.3	-48.5	-48.1
	001170	1380	004312	002041	59937.45	16084.76	33376.28	70463.75	62057.94	33656.32	74.98	28.27	-47.2	-47.2	-47.1
	001170	1410	004312	002041	60934.29	16586.23	33003.71	71255.06	63151.09	33293.52	74.77	27.59	-45.3	-44.5	-44.4
	001170	1440	004312	002041	61881.90	17032.28	32738.56	72050.19	64182.84	33037.73	74.61	27.03	-45.2	-44.0	-44.2
	001170	1470	004312	002041	62911.07	17235.20	32426.30	72844.12	65228.96	32735.18	74.68	26.43	-42.9	-42.6	-42.8

MSS Data Dump

SOFTWR STATUS	TIME	HARDW1 STATUS	HARDW2 STATUS	X	Y	Z	SLANT RANGE	GROUND RANGE	ALTITUDE	AZ	EL	TEMP1	RH	TEMP2
001170	1500	004312	002041	64037.96	17340.14	32034.11	73672.75	66343.81	32353.45	74.85	25.77	-46.5	-46.2	-45.8
001170	1530	004312	002041	65089.79	17521.93	31734.85	74503.37	67406.62	32064.34	74.93	25.21	-45.4	-45.9	-45.8
001170	1560	004312	002041	66201.87	17660.59	31437.02	75386.31	68518.75	31777.30	75.06	24.65	-47.1	-46.6	-46.2
001170	1590	004312	002041	67197.75	17778.00	31258.12	76214.25	69509.31	31608.18	75.18	24.21	-46.1	-45.8	-45.6
001170	1620	004312	002041	68130.25	18142.48	30795.15	77022.37	70598.25	31156.12	75.12	23.57	-46.3	-46.0	-46.5
001170	1650	004312	002041	69187.00	18396.13	30576.25	77846.75	71590.56	30947.30	75.11	23.13	-46.7	-47.0	-47.2
001170	1680	004312	002041	70195.50	18839.54	30255.33	78725.25	72629.31	30637.61	74.98	22.60	-47.4	-47.0	-47.3
001170	1710	004312	002041	71231.00	19050.36	29994.22	79601.31	73734.19	30387.54	75.03	22.14	-49.3	-49.7	-49.8
001170	1740	004312	002041	72216.00	19303.59	29723.04	80443.69	74751.12	30127.15	75.03	21.68	-50.8	-51.1	-50.9
001170	1770	004312	002041	73154.44	19639.16	29489.21	81282.37	75744.44	29904.00	74.97	21.27	-51.5	-51.1	-50.7
001170	1800	004312	002041	74042.37	19930.03	29275.27	82076.00	76677.44	29700.20	74.93	20.90	-51.2	-50.7	-50.4
001170	1830	004312	002041	74869.94	20224.56	29066.76	82821.31	77553.12	29501.34	74.88	20.55	-50.6	-50.7	-50.3
001170	1860	004312	002041	75681.69	20522.45	28870.27	83560.31	78414.50	29314.46	74.83	20.21	-50.4	-50.3	-50.8
001170	1890	004312	002041	76562.75	20778.39	28512.62	84318.31	79351.19	26967.59	74.82	19.76	-50.8	-50.5	-50.9
001170	1920	004312	002041	77369.87	21036.29	28318.25	85032.25	80178.37	28782.45	74.79	19.45	-51.0	-50.6	-50.9
001170	1950	004312	002041	78168.81	21279.32	28076.23	65758.44	81032.37	28550.28	74.78	19.11	-53.0	-52.1	-52.1
001170	1980	004312	002041	79019.94	21519.87	27881.85	86513.50	81897.50	28365.98	74.72	18.80	-52.9	-53.2	-53.0
001170	2010	004312	002041	79829.12	21652.95	27748.01	87243.50	82713.31	28241.73	74.82	18.55	-52.6	-52.1	-52.9
001170	2040	004312	002041	80647.81	21884.63	27431.38	87951.25	83564.06	27935.23	74.82	18.17	-52.8	-53.0	-52.8
001170	2070	004312	002041	81452.25	22046.50	27150.39	88643.12	84362.81	27664.08	74.85	17.84	-54.2	-53.8	-54.0
001170	2100	004312	002041	82213.19	22302.23	26882.71	89327.44	85184.19	27413.14	74.82	17.52	-54.3	-53.9	-53.8
001170	2130	004312	002041	82873.75	22630.34	26764.34	89980.31	85907.75	27296.60	74.73	17.30	-55.4	-55.4	-55.3
001170	2160	004312	002041	83602.37	22823.98	26557.29	90639.44	86661.62	27098.87	74.73	17.04	-55.6	-55.3	-55.1
001170	2190	004312	002041	84299.06	22942.68	26363.04	91255.94	87365.00	26913.37	74.78	16.79	-56.0	-55.6	-55.4
001170	2220	004312	002041	85031.31	22919.62	26112.73	91855.50	88065.75	26671.86	74.91	16.52	-55.4	-55.2	-55.0
001170	2250	004312	002041	85673.50	23036.59	25934.87	92429.31	88716.25	26502.23	74.95	16.30	-56.0	-55.7	-55.6
001170	2280	004312	002041	86334.31	23081.52	25747.78	93001.25	89366.12	26323.41	75.03	16.07	-56.0	-55.5	-55.8
001170	2310	004312	002041	86998.69	23252.07	25543.42	93604.50	90052.00	26127.85	75.04	15.84	-56.6	-56.9	-56.9
001170	2340	004312	002041	87657.87	23392.57	25408.37	94215.81	90725.12	26001.50	75.06	15.65	-57.6	-57.5	-57.2
001170	2370	004312	002041	88327.50	23605.07	25175.09	94829.56	91426.94	25777.36	75.04	15.40	-56.9	-56.8	-57.3
001170	2400	004312	002041	88995.37	23822.08	24996.33	95365.69	92031.56	25606.56	75.00	15.20	-58.6	-58.3	-58.1
001170	2430	004312	002041	89380.56	23990.43	24835.90	95818.37	92543.81	25452.69	74.98	15.02	-58.5	-58.1	-58.0
001170	2460	004312	002041	89877.62	23949.85	24621.66	96216.94	93013.37	25244.89	75.08	14.83	-59.9	-59.9	-60.1
001170	2490	004312	002041	90418.62	23925.32	24430.58	96668.00	93530.00	25060.71	75.18	14.64	-59.7	-59.4	-59.5
001170	2520	004312	002041	90993.75	23875.56	24321.59	97166.56	94073.50	24959.01	75.30	14.50	-60.1	-59.8	-59.7
001170	2550	004312	002041	91561.31	23864.14	24136.70	97649.62	94619.75	24781.50	75.39	14.31	-59.7	-60.2	-60.6
001170	2580	004312	002041	92119.37	23964.54	23972.34	98157.25	95185.00	24624.81	75.42	14.14	-61.0	-60.4	-60.6
001170	2610	004312	002041	92730.69	24016.31	23880.35	98721.44	95769.75	24541.09	75.48	14.00	-60.8	-60.9	-61.0
001170	2640	004312	002041	93311.87	24166.84	23665.57	99252.75	96390.06	24334.58	75.48	13.79	-61.5	-61.7	-61.6
001170	2670	004312	002041	93783.00	24386.46	23469.96	99703.00	96901.25	24146.05	75.42	13.62	-61.3	-60.9	-60.7
001170	2700	004312	002041	94214.62	24557.89	23444.71	100145.10	97362.19	24127.18	75.39	13.54	-62.1	-61.7	-61.6
001170	2730	004312	002041	94721.06	24748.25	23174.20	100605.70	97900.31	23864.21	75.36	13.32	-61.4	-60.9	-60.8
001170	2760	004312	002041	95302.19	24947.37	23034.94	101174.80	98517.69	23733.61	75.33	13.16	-61.6	-61.5	-61.7
001170	2790	004312	002041	95902.00	25171.20	22900.28	101759.90	99149.81	23607.69	75.29	13.01	-63.5	-63.6	-63.9
001170	2820	004312	002041	96447.25	25505.37	22663.30	102304.00	99762.19	23379.64	75.19	12.80	-64.1	-63.9	-63.8
001170	2850	004312	002041	96931.62	25827.79	22571.31	102821.10	100313.10	23295.54	75.08	12.68	-64.6	-64.5	-64.5
001170	2880	004312	002041	97446.12	26090.30	22487.05	103353.70	100877.80	23219.40	75.01	12.57	-64.9	-65.0	-65.1
001170	2910	004312	002041	97927.25	26497.05	22308.38	103872.00	101448.10	23049.00	74.86	12.40	-66.4	-66.1	-66.1
001170	2940	004312	002041	98301.62	26845.48	22133.00	104276.80	101900.80	22880.21	74.73	12.25	-66.0	-65.9	-66.3
001170	2970	004312	002041	98603.75	27036.27	22091.44	104602.00	102242.60	22843.64	74.67	12.19	-65.8	-65.5	-65.4

MSS DATA DUMP

SOFTWR STATUS	TIME	HARDWI STATUS	HARDW2 STATUS	X	Y	Z	SLANT RANGE	GROUND RANGE	ALTITUDE	AZ	EL	TEMP1	RH	TEMP2
001170	3030	004312	002041	98653.81	27144.20	21921.21	104829.90	102512.30	22677.38	74.65	12.07	-65.9	-66.7	-66.6
001170	3030	004312	002041	99116.94	27212.62	21824.25	105075.60	102784.20	22584.42	74.65	11.99	-66.4	-66.3	-66.9
001170	3060	004312	002041	99386.25	27524.47	21652.63	105375.30	103126.70	22417.85	74.52	11.86	-67.3	-67.0	-67.0
001170	3090	004312	002041	99728.75	27776.04	21435.94	105720.00	103524.00	22207.06	74.44	11.70	-68.1	-68.0	-68.1
001170	3120	004312	002041	100109.20	28002.98	21323.98	106116.10	103951.40	22101.44	74.37	11.59	-67.7	-68.7	-68.9
001170	3150	004312	002041	100506.90	28187.42	21209.29	106517.00	104384.20	21993.20	74.33	11.49	-70.3	-70.2	-70.4
001170	3180	004312	002041	100827.10	28594.09	20965.52	106879.20	104802.80	21755.72	74.17	11.31	-70.1	-70.4	-71.3
001170	3210	004312	002041	101026.90	29042.70	20802.20	107156.60	105118.10	21597.15	73.96	11.19	-70.6	-70.5	-71.5
001170	3240	004312	002041	101193.40	29129.42	20766.68	107330.10	105302.00	21564.40	73.94	11.16	-71.6	-72.6	-73.0
001170	3270	004312	002041	101421.00	29133.98	20708.75	107534.80	105522.00	21509.79	73.97	11.10	-75.4	-75.2	-75.8
001170	3300	004312	002041	101777.20	29025.59	20574.95	107816.10	105834.70	21380.73	74.08	11.00	-76.4	-75.8	-75.7
001170	3330	004312	002041	102185.00	29127.48	20371.09	108189.80	106254.70	21183.25	74.09	10.85	-75.3	-75.2	-75.7
001170	3360	004312	002041	102681.10	29242.02	20200.27	108657.40	106763.20	21020.19	74.10	10.71	-75.5	-75.5	-75.4
001170	3390	004312	002041	103238.90	29438.89	20165.25	109231.10	107353.60	20994.21	74.08	10.64	-76.5	-76.0	999.9
001170	3420	004312	002041	103776.10	29704.03	20154.99	109808.40	107942.90	20993.03	74.03	10.58	-76.1	-75.6	-75.6
001170	3450	004312	002041	104190.70	30127.21	20036.02	110293.60	108458.40	20882.04	73.87	10.47	-75.9	-75.9	-76.4
001170	3480	004312	002041	104513.90	30506.52	19860.76	110671.20	108874.70	20713.27	73.73	10.34	-76.2	-76.0	-76.3
001170	3510	004312	002041	104805.40	30897.55	19639.32	111015.40	109264.40	20497.92	73.57	10.19	-76.5	-76.3	-76.2
001170	3540	004312	002041	105162.20	31110.75	19621.92	111402.10	109667.40	20486.69	73.52	10.14	-76.6	-76.4	-76.3
001170	3570	004312	002041	105600.90	31307.21	19588.93	111871.70	110143.40	20461.34	73.49	10.08	-76.8	-76.7	-76.4

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 8   ----  ----  ----  ----  ----  ----  3030  3030  ..............0000
10   3030  3430  3239  0028  0028  0001  0003  0001  0004029.(8.(.......
18   000A  4210  0001  0000  0000  0000  0000  3435  ..B.............45
20   3636  2020  3435  3636  2020  0152  43DA  43B4  66  4566  CB$Z(.
28   B2EE  423C  347A  3435  3636  2020  0152  43DA  7.B(4.4566  AB@Z.
30   43B4  B2EE  423C  347A  0000  0000  0001  4040  (.7.B(4.........@@
38   1040  409A  209B  40C7  34E0  40E7  304A  40EF  .@@. .@G4`@G0J@.
40   1162  4112  D0E5  4114  D0E5  4117  A233  411B  .@A.PEA.PEA.#3A.
48   2EB2  4110  651E  411E  72B0  411F  4467  411F  .2A...A.rA0A.DGA.
50   FF97  4122  D0E5  4124  D0E5  4127  A233  4129  ..A"PEA$PEA'#3A)
58   A1CA  412C  7319  412E  72B0  412E  FF97  4132  !JA,s.A.rA0A/..A2
60   D0E5  4150  0000  0000  0000  0000  0000  40EF  PEAP.........@@o
68   66AF  40EB  346C  40E7  304A  40E3  4576  40DF  f/@k4.@G0J@CE.@_
70   84D4  40D6  6949  40CF  9061  40C0  332d  40A9  .T@V)I@N.a@@3(@)
78   077E  4097  4B1F  40BF  D6B6  40B9  3FB1  40B3  ..@.K.@.V6@.?@@.
80   3722  406C  6152  40BD  1CC1  4049  E4F7  403F  7"@laR@].A@IdW@)
88   555C  4031  1D15  4029  B2EE  4025  0B70  401E  UX@1..@)7?@Z.p@.
90   67B6  4013  46DD  0000  0000  0000  0000  5453  g6@.F]........TS
98   5452  4254  4219  0001  4217  0001  4219  0001  TRQTB...B...B...
A0   000D  90D4  000F  000F  0002  0000  000F  0000  ...P............
A8   0000  0000  0000  0000  0000  0000  0000  0000  ................
B0   0000  07E8  0BB4  0000  0002  0000  000D  0BBF  ...H...........?
B8   0E93  000D  000A  0000  A663  AAAA  21E3  6201  ........&C**!=a.
C0   2103  62DB  0102  0200  2104  400D  4000  0102  !.bL....!.@.@...
C8   04D7  2133  AD00  0C0F  1801  0CD7  2132  AD00  .W!3-.....W!2-.
D0   0C0F  1802  0CD7  2131  AD00  0C0F  1803  0CD7  .....W!1-.....W
D8   213C  AD50  0C0F  1804  0CD7  213B  AD00  0C0E  !<-P.....W!;-...
E0   1805  0CD7  2126  AD00  0C0F  1806  0CD7  2125  ...W!&-.....W!%
E8   AD00  0C0F  1807  0CD7  2130  AD00  0C0F  1809  -.....W!0-.....
F0   0CD7  212F  AD00  0C0F  1804  0CD7  211A  AD00  .W!/-.....W!.-.
F8   0C0F  1808  0CD7  0129  1068  2454  5449  0000  .....W.).h$TTI..
100  1070  2454  544F  0000  107H  5154  593A  3000  .p$TTO...xQTY:0.
108  1080  5154  593A  3100  1088  5154  0078  0000  ..QTY:1...QT.x..
110  514A  0421  45F4  23F0  45F4  23F0  45F4  23F0  .J.!ET$pET$pET$p
118  45F4  23F0  45F4  23F0  45F4  23F0  427A  0294  ET$pET$pET$pB.*.
120  4109  FB85  C1B0  C3A0  C166  86A0  C19E  51A0  A.{.A0C AF. A.Q
128  0000  0000  0000  0000  4110  0000  0078  012C  ........A....x.,
130  08CA  0421  45F4  23F0  45F4  23F0  45F4  23F0  .J.!ET$pET$pET$p
138  45F4  23F0  45F4  23F0  45F4  23F0  4266  DEB9  ET$pET$pET$pBf^9
140  4248  170B  C245  420A  433E  7E67  C245  420A  BH..BEB.C).gBEB.
148  0000  0000  0000  0000  4110  0000  0078  0258  ........A....x.X
150  08CA  0421  45F4  23F0  45F4  23F0  45F4  23F0  .J.!ET$pET$pET$p
158  45F4  23F0  45F4  23F0  45F4  23F0  4263  9999  ET$pET$pET$pBc..
160  4247  E8F8  C245  420A  433E  7E67  C245  420A  BGHxBEB.C).gBEB.
168  0000  0000  0000  0000  4110  0000  0078  0384  ........A....x..
170  08CA  0421  45F4  23F0  45F4  23F0  45F4  23F0  .J.!ET$pET$pET$p
178  45F4  23F0  45F4  23F0  45F4  23F0  4262  214A  ET$pET$pET$pBa!J
180  4245  B333  4220  4BE6  C224  17EA  4221  DA26  BE33B KfB&.JB!Z&
188  0000  0000  0000  0000  4110  0000  0278  04BD  ........A....x.=
190  08CA  0421  4561  1557  C4CE  6DE5  45DF  A2B7  .J.!Ea.WDNmeE_"7
198  45F4  23F0  4561  EFD9  45E2  2060  4261  91EC  ET$pEaoYEb `Ba.L
1A0  4242  5998  C24B  D0EA  C240  87FA  433E  7E67  BBY.BKPJB@..C).g
1A8  0000  0000  0000  0000  4110  0000  1278  050C  ........A....x.\
1B0  08CA  0421  4480  16DF  C411  9BA7  4511  2D14  .J.!D...D..'E.-.
1B8  4512  FB64  4481  4B28  4511  3244  4261  D3C4  E..{D.K(E.2DBaSD
1C0  4240  CDE9  C24B  D0EA  C240  87FA  433E  7E67  B@MiBKPJB@..C).g
```

12:45:48 2Y MAR, 1984 DATA FILE BINARY DUMP PAGE 1

```
1C8  0000 0000 0000 0000 0000 0000 0278 0760 .............x..
1D0  0BCA 0421 4482 6Y3B 0411 A0B7 4510 6A4B .J.!D..;DD. .E.JK
1D8  4512 599A 4483 39AF 4510 6EA1 4261 B83C E.Y.D.9/E.n!BaB<
1E0  4446 7A62 C1B7 F6A0 C1C6 C0A0 C1EF D2A0 DFs`A7. AF@ AOR
1E8  0000 0000 0000 0000 0000 0000 0278 0B54 .............x.4
1F0  0BCA 0421 4483 F370 C3F6 13DA 44FC 6C0F .J.!D.spCv.ZD.L.
1F8  4511 03F5 4484 07FD 44FC C378 4260 A5F4 E.Su.W.D.C.B`%t
200  423E 3E41 C1FA C0A0 C1FD 66A0 C1EA E6A0 B>>AA.L A.F AJF
208  0000 0000 0000 0000 0000 0000 0278 0960 .............x.`
210  0BCA 0421 4483 C093 C3E8 3CC4 44F3 8A55 .J.!D.@.CH(pDs.U
218  4511 6503 4486 6EAF 44F3 E3EF 4260 450B E.cSD../DscoB`EC
220  423D 143C C187 AEA0 C164 D9A0 C160 A3A0 B=.(A.. AnY A`$
228  0000 0000 0000 0000 0000 0000 0278 0ABC .............x..
230  0BCA 0421 4486 8H69 C3CB 26EA 44EB BB31 .J.!D..iCK&JDk;1
238  4510 FB86 4487 2451 44EC 1586 425F 641D E...D.$QDL..B_d.
240  423C 2CC2 B695 A000 A114 B160 A086 5600 B<,B%..A..`&.V.
248  0000 0000 0000 0000 0000 0000 1278 0B8B .............x.B
250  0BCA 0421 4486 1E22 C396 67A5 44E4 B156 .J.!D..`C.gzDd.V
258  4510 91F5 4486 703F 44E4 DAD3 425E 0261 E..uD.R?DoZSB^.a
260  423B B74E C134 ABA0 C0C6 BA00 C097 9A00 B;.NA4( @F:.@...
268  0000 0000 0000 0000 0000 0000 1278 0CE4 .............x.D
270  0BCA 0421 4485 5BB7 C363 71EC 44DE 3E36 .J.!D.X.CcqLD^ Z6
278  4510 3412 4485 7D79 44DE 978D 425C AB2E E.4.D..yD^..B\+.
280  423B 0260 4127 E960 412F EC60 405F E600 B;.`A'i`A/l`@_F.
288  0000 0000 0000 0000 0000 0000 0278 0E10 .............x..
290  0BCA 0421 4484 9C52 C32D E0D2 44DB 5385 .J.!D..RC-`RDXS.
298  44FD C09E 4484 A423 44D8 AAD3 425B 3D1B D.@.D.$@DX*SB[=.
2A0  4236 2C36 C06B 5A00 C097 9A00 C11B 00A0 B6.,6@kZ.@...A..
2A8  0000 0000 0000 0000 0000 0000 0278 0F3C .............x.<
2B0  0BCA 0421 4483 604B 4243 948D 44D2 D0D5 .J.!D.`+BC..DRPU
2B8  44F8 66A4 4483 60A2 44D3 2697 4259 E265 Dxf$D.``DS&.BYb.
2C0  423A 11C0 C137 76A0 C13D 0CA0 C15C EEA0 B:.@A7v A=. A\n
2C8  0000 0000 0000 0000 0000 0000 4678 1068 ............Fx.H
2D0  0BCA 0421 4482 4112 4321 2999 44CE 0CDD .J.!D.A.C!).DN.]
2D8  44F3 C6AE 4482 452D 44CE 6144 4259 169D DsF.D.E-DNaDBY..
2E0  4239 B2A5 C11B 00A0 4111 7660 412B 2A60 B92%A. A.v`A+*`
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2F0  0BCA 0421 4482 1B1A 435F 54F5 44C9 635D .J.!D...C_TuDIc]
2F8  44EF D532 4482 3DE5 44C9 B78D 4257 60BE DoU2D.=eDI7=BW`)
300  4239 1BC1 4150 9460 A13C 0E60 433E 7E67 B9.APa.`A(.`C).g
308  0000 0000 0000 0000 0000 0000 0278 12C0 .............x.@
310  0BCA 0421 4483 9331 43A1 12BA 44C5 1DAA .J.!D..1C!.:DE.*
318  44ED 3539 4483 F587 44C5 742E 4255 9FEA Dm59D.u.DEt.BU.j
320  423B 331E C14E BDA0 C156 01A0 C151 B5A0 B;3.AU. AV. AQ5
328  0000 0000 0000 0000 0000 0000 0278 13EC .............x.L
330  0BCA 0421 4485 30C2 43CD 6B4C 44C1 14A4 .J.!D.+BCMkLDA.$
338  44EA EF7F 4485 D69E 44C1 6D80 4254 7EE0 DjO.D.X.DAm.BT.`
340  4237 450D C134 05A0 C11D 43A0 C117 7BA0 BZE.A4. A.C A..
348  0000 0000 0000 0000 0000 0000 0278 1518 .............x..
350  0BCA 0421 4484 3BF0 4411 0EEE 44BD 2577 .J.!D.;pD..nD=%W
358  44E7 A69B 4485 5456 44B0 CDB0 4252 A63A Dg+.D.TVD=MOBR&:
360  4236 DD4D C144 B6A0 C151 B5A0 C173 65A0 B6]MAD6 AQ5 Ase
368  0000 0000 0000 0000 0000 0000 1278 1644 .............x.D
370  0BCA 0421 4483 6F0B 4414 572C 44B9 FD24 .J.!D.o.D.W,D9.T
378  44E4 A641 4484 FF73 44BA 5548 4251 33E7 Dd&AD..sD:UKBQ3g
380  4236 6EA1 C166 F2A0 C15A 47A0 C18D A7A0 B6n!AfR AZG A.'
```

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3D0  4235 C03F C19B F640 C196 1AA0 C17E 27A0 B5@?A.v A.. A.'
3D8  0000 0000 0000 0000 0000 0000 0278 189C ..........x...
3E0  08CA 0421 44B5 3450 4418 41D2 44B3 AFD7 .J.!D.4PD.ARD3/W
3E8  44E0 FC74 44B7 64FA 44B4 0AAF 424F ADE2 D`.tD.d.D4./BO-b
3F0  4235 0078 C154 61A0 C15C EEA0 C163 47A0 B5..ATa A\n AcG
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400  08CA 0421 44B7 D8E3 4418 3180 44B0 CAD0 .J.!D.XcD.1.DOJP
408  44E0 43F1 4469 FC04 4481 28F6 424F E6E3 D`CqD...D!(vBOFc
410  4234 0740 C162 BFA0 C15E B6A0 C166 F2A0 B4.@Ab? A^. AfR
418  0000 0000 0000 0000 0000 0000 0278 1AF4 ..........x.T
420  08CA 0421 44B8 26DF 4418 318D 44AD C951 .J.!D.&_D.1.D-IQ
428  44DF F114 44BD 3D27 44AE 28B7 4250 2309 D_q.D.='D.+7BP#.
430  4232 E610 C194 23A0 C196 1AA0 C1A2 BAA0 B2f.A.# A.. A!.
438  0000 0000 0000 0000 0000 0000 0278 1C20 ..........x.
440  08CA 0421 44BE 6A5E 4417 CC71 44AA F93F .J.!D.j^D.L.D*y?
448  44DF C937 4490 63CE 44A8 5FE3 4250 834D D_I7D.cND+_cBP.M
450  4231 D1B1 C1D5 EBA0 C1E1 DEA0 C1E3 3CA0 B1Q.AUk AA^ Ac<
458  0000 0000 0000 0000 0000 0000 0278 1D4C ..........x.L
460  08CA 0421 4491 C237 4417 FBC5 44AB 5DDE .J.!D.B7D..E[D^
468  44DF FB3E 4493 B7D9 44A8 C909 4250 A7F7 D_.)D.7YD(I.BP'w
470  4230 BCD1 C1DD E0A0 C1EC B5A0 433E 7E67 B0(UAJ@ AL5 C).g
478  0000 0000 0000 0000 0000 0000 0278 1E78 ..........x.x
480  08CA 0421 4495 375C 4418 BA6E 44A5 C835 .J.!D.7\D.:nD%H5
488  44E0 693E 4497 4030 44A6 3852 4250 9723 D`i>D.@=D&8RBP.#
490  422E 9ED0 C1EC 3EA0 C1EA E6A0 C1E2 C6A0 B/.PAL> AJF AbF
498  0000 0000 0000 0000 0000 0000 4678 1FA4 ..........Fx.$
4A0  08CA 0421 4498 C3B1 4416 660B 44A3 3A9E .J.!D.C1D.f.D#:.
4A8  44E1 1DA4 449B 0730 44A3 B025 4250 321A Da.$D..0D#0%BP2.
4B0  422E 79E1 C1E7 5160 C1DA FCA0 C1DC 5EA0 B.yAAgQ AZ. A\^
4B8  0000 0000 0000 0000 0000 0000 0278 20D0 ..........x P
4C0  08CA 0421 449D 25D7 441C 941F 44A0 88BD .J.!D.%WD...D.=
4C8  44E2 751E 449F B98D 44A1 0531 424F B161 Dbu.D.9.D!.1BO1a
4D0  422D 2510 C211 9BBA C212 AB7A C214 7B6A B-%.B.;B.*B.+B.{j
4D8  0000 0000 0000 0000 0000 0000 0278 21FC ..........x!.
4E0  08CA 0421 44A2 0F15 4418 C1E7 449E 6E38 .J.!D'..D.AgD.nH
4E8  44E4 9444 44A4 C492 449E F251 424F 965B Dd.DD$D.D.rQBO.[
4F0  422B E96D C218 455A C218 37AA C218 29EA B+imB.EZB.7*B.)j
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500  08CA 0421 44A7 0FB3 441E 71EF 449C 983A .J.!D'.3D.qoD..:
508  44E6 FE47 44A9 CFF1 449D 2435 424F ABFB Df.GD)OqD.$5BO+.
510  422A AE5C C21Y 29EA C218 DA2A C218 455A B*.\B.)jB.Z*B.EZ
518  0000 0000 0000 0000 0000 0000 0278 2454 ..........x$T
520  08CA 0421 44AC C2DB 4420 3YEB 449A 333C .J.!D.[B.D YmD.3<
528  44E9 CC7A 44AF B044 449A C8C7 424F 6EFE DiL.D/=DD.HGBOn.
530  42AY 43D0 C218 530A C218 DCBA C21A DC2A B)CPB.S.B.L:B.\*
538  0000 0000 0000 0000 0000 0000 4678 2580 ..........Fx%.
540  08CA 0421 44B1 9015 4421 D6F1 4498 49BD .J.!D1..D!VqD.I=
548  44EC 5691 44B4 C209 4498 E7A8 424F 35C4 DlC.D4B.D.g(BO5D
550  422B 1D31 C21E BFCA C21E 180A C220 A21A B[.1B.?JB...B "*
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568  44EE BB18 4469 8396 4496 E7C0 424E F9C2 Dn;.D9..D.gMBNyB
570  4227 0173 C221 87EA C220 A21A C271 EE9A B'.sB!.jB "*.B!n.
```

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558  44F1 3EC8 44BE 5161 4494 EEDC 424E 9BA1 Dq)KD)QAD.n\BN.!
560  4226 EADB C225 BC3A C225 -669A C225 2A1A B&J!B&.:B&..B&*.
568  0000 0000 0000 0000 0000 0000 4678 2904 ..............Fx).
570  0BCA 0421 44BE CBEC 4428 16B9 4492 9081 .J.!D)HD(.9D...
578  44F3 E6CF 44C2 F420 4493 4760 424E 20F8 DsFODBT D.G`BN x
580  4224 EF7E C225 BC7A C225 F30A C226 3CFA B$o.B%(.B%s.B&(.
588  0000 0000 0000 0000 0000 0000 0278 2A30 ..............x*0
590  0BCA 0421 44C2 D41C 442A B87F 4490 4C70 .J.!DBT.D*8.D.pP
598  44F6 65AE 44C7 73C8 4491 6BA1 424D A345 Dve.DGsHD.k!BM#E
5A0  4223 F496 C229 E37A C229 CDEA C229 06BA B$r.B)c.B)MJB).:
5A8  0000 0000 0000 0000 0000 0000 1278 2B5C ..............x+\
5B0  0BCA 0421 44C6 3B55 442D 12B2 448F 2F0C .J.!DF8U!-.2D./\
5B8  44FB A55A 44CB 476F 448F 1630 4240 307B DxZZDKGoD.v=BM0.
5C0  4223 290B C22A 1E1A C22A 333A C22A E18A B#).B*..B*3:B*a.
5C8  0000 0000 0000 0000 0000 0000 0278 2C88 ..............x,.
5D0  0BCA 0421 44CA 3C29 442F E51F 448D 8D6C .J.!DJ.vD/e.D..l
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5E0  4222 463B C22B A23A C22A FB8A C22A EC8A B"F;B+":B*..B*l.
5E8  0000 0000 0000 0000 0000 0000 0278 2DB4 ..............x-4
5F0  0BCA 0421 44CE 2083 4431 9B22 448C AE68 .J.!DN .D1."D.Dh
5F8  44FE 369C 44D4 0228 448D 26C1 424C 78C3 D.j.DT.(D.&ABLxC
600  4221 2E45 C22C CFCA C22C 0104 C22C 0A5A B!.EB+OJB*..B*.Z
608  0000 0000 0000 0000 0000 0000 0278 2EE0 ..............x.`
610  0BCA 0421 44D1 DB93 4434 9EEA 448A 499E .J.!DQC.D4.JD.I.
618  4510 0C5C 44D8 5A7A 448B 29B4 424B EC6E E..\DXZ.D.)4BKlN
620  4220 95FF C22D 13E6 C22C EEBA C22D 342A B .nB=-.JB+n!B-4*
628  0000 0000 0000 0000 0000 0000 0278 300C ..............x0.
630  0BCA 0421 44D6 7AB6 4436 F300 4488 9553 .J.!DV.6D6s.D..S
638  4510 4250 44DD 67D2 4489 7FBE 424B A145 E.BPDIgRD..)BK!E
640  421F ABAB C232 62DA C232 A95A C232 A5DA B.+.B2s(B2)ZB2%Z
648  0000 0000 0000 0000 0000 0000 0278 3138 ..............x18
650  0BCA 0421 44D9 9388 4438 059C 4487 B225 .J.!DY..D8..D."%
658  4510 6787 44E0 AC10 4488 A365 424B 8F9B E.g.D`,.D.#eBK..
660  421F 217E C231 EB4A C231 A85A C232 139A B.!.B1kJB1(ZB2..
668  0000 0000 0000 0000 0000 0000 0278 3264 ..............x2d
670  0BCA 0421 44DD D325 4439 7D1A 4486 754F .J.!D1%ZD9..D.uO
678  4510 9AFE 44E5 26FD 4487 700E 424B 787F E...De&.D.p.BKx.
680  421E 6721 C233 2BCA C232 6344 C231 B73A B.g!B3+JB2cJB1.:
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690  0BCA 0421 44E2 1020 443A F0EB 4485 40E0 .J.!Db. D:pkD.@`
698  4510 CF35 44E9 9E9A 4486 454A 4248 62FB E.O5Di..D.EJBKs.
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6A8  0000 0000 0000 0000 0000 0000 1678 34BC ..............x4<
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6B8  4511 0229 44EE 5B34 4484 5FFB 424B 2BB9 E..)DnC4D._.BK(9
6C0  421C D9EC C231 54DA C230 8B6A C230 190A B.Y.B1TZB0.JB0..
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6D8  4511 33FC 44F2 69F1 4483 7851 424A FA61 E.3.DriqD.xQBJ.a
6E0  421C 45BE C22F B61A C22E 3456 C22E 244A B.E?B/6.B/4VB/$J
6E8  0000 0000 0000 0000 0000 0000 1278 3714 ..............x7.
6F0  0BCA 0421 44EE 064A 4440 CA3A 4480 EBB7 .J.!Dn.JD@J:D.kZ
6F8  4511 6571 44F6 AF16 4482 0D86 424A C5E5 E.eqDv/.D...BJEe
700  421B 979B C22D 519A C22C 752A C22C 66AA B...B-Q.B,u*B,f*
```

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710  08CA 0421 44F1 BYE7 4442 8848 447F E290 .J.!Da9GDH.HD.B.
718  4511 9723 44FA B608 4481 0D8C 424A 9C68 E..#D.6XD..(BJ.H
720  421B 067C C22D 362A C22C 6A5A C22C 310A B...B.6*B,.ZB,1.
728  0000 0000 0000 0000 0000 0000 5278 396C ..........Rx9L
730  08CA 0421 44F5 BF11 4443 5333 447E AA4D .J.!DU7.DCS3D.*M
738  4511 C8C2 44FE CCF6 447F DF2D 424A ADD6 E.HBD.LvD..BJ-V
740  421A 6EC3 C22A E60A C22A 99EA C22A C2BA B.nCB*F.B*.JB*B:
748  0000 0000 0000 0000 0000 0000 1278 3A98 ..........x:.
750  08CA 0421 44FA 25E6 4443 BC23 447D 221D .J.!D.%vDC(#D."
758  4511 FC8C 4510 327D 447E 6173 424A D948 E...E.2.D.asBJ(H
760  4219 C60Y C22E 83FA C22E 379A C22D C1EA B.F.B...B.7.B-AJ
768  0000 0000 0000 0000 0000 0000 0278 36C4 ..........x6D
770  08CA 0421 44FE 41CA 4444 71ED 447B F6D7 .J.!D.AJDDqmD.vY
778  4512 3076 4510 74EA 447D 4056 424A EEEC E.0vE.tJD.@VBJnL
780  4219 35EF C22D 6B5A C22D E0CA C22D D2FA B.5.B=kZB=`JB=W.
788  0000 0000 0000 0000 0000 0000 0278 3CF0 ..........x<P
790  08CA 0421 4510 2Y9E 4445 0497 447A CD04 .J.!E.).DE..D.M.
798  4512 67A5 4510 BA6C 447C 214E 424B 0E7E E.gZE.:lD.!NBK..
7A0  421B A565 C22F 204A C22E A146 C22E 379A B.%eB/ JB.!JB.7.
7A8  0000 0000 0000 0000 0000 0000 0278 3E1C ..........x>.
7B0  08CA 0421 4510 67DC 4445 71EF 4476 1A1E .J.!E.g\DEq.Dv..
7B8  4512 9B64 4510 F655 4478 782D 424B 2E5F E..dE.vUD.x-BK._
7C0  421B 369B C22E 1B8A C22D D16A C22D A0BA B.6.B...B-QJB-:
7C8  0000 0000 0000 0000 0000 0000 1278 3F48 ..........x?H
7D0  08CA 0421 4510 AB64 4446 D47C 4478 4B26 .J.!E.+dDET.DxK&
7D8  4512 CDE6 4511 3C64 4479 B420 424B 1E0C E.MfE.<dDy4 BK..
7E0  4217 9124 C22E 533A C22D FD3A C22E 7516 B..$B.S:B-.:B.u.
7E8  0000 0000 0000 0000 0000 0000 5678 4074 ..........Vx@t
7F0  08CA 0421 4510 E430 4442 DC22 4477 7046 .J.!E.d0DB\"DwpF
7F8  4513 016C 4511 7A69 4478 E34C 424B 1C30 E..lE..zDxcLBK.0
800  4217 2095 C22E AB7A C22F 09BA C22E 31FA B. .B.+.B/.:B/1.
808  0000 0000 0000 0000 0000 0000 1278 41A0 ..........xA
810  08CA 0421 4511 2338 4449 97B9 4476 2F55 .J.!E.#8DI..Dv/U
818  4513 3854 4511 BE75 4477 AD9B 424A FA00 E.8TE.>uDw-.BJ..
820  4216 9YEB C22E 6D7A C22E 05AA C22E 55CA B..kB/m.B/.*B/UJ
828  0000 0000 0000 0000 0000 0000 0278 42CC ..........xBL
830  08CA 0421 4511 63F0 444A 6A5B 4475 2A38 .J.!E.cPDJJLDu*8
838  4513 6F15 4512 0063 4476 B38B 424B 06E6 E.o.E..cDv3.BK.F
840  4216 22CC C231 495A C231 BB1A C231 C28A B."LB1IZB11.B1B.
848  0000 0000 0000 0000 0000 0000 0278 43F8 ..........xCx
850  08CA 0421 4511 A1B0 444R 679B 4474 1B0R .J.!E.!.DNg.Dt..
858  4513 A3B8 4512 3FF2 4475 AF26 424B 08D4 E.#8E.?rDu/&BK.T
860  4215 AF20 C232 D67A C233 1ABA C232 D9EA B./ B2V.B3.:B2YJ
868  0000 0000 0000 0000 0000 0000 0278 4524 ..........xE$
870  08CA 0421 4511 DC27 444C B728 4423 3136 .J.!E.\'DLZ(Ds16
878  4513 D826 4512 7E07 4474 D001 424A F8FB E.X&E...DtP.BJx.
880  4215 45B0 C233 7B2A C233 1AEA C232 A9BA B.E0B3x*B3.JB2):
888  0000 0000 0000 0000 0000 0000 0278 4650 ..........xFP
890  08CA 0421 4512 13A6 444D DA08 4472 5B46 .J.!E..&DMZ.DrIF
898  4514 09C0 4512 B657 4474 0434 424A EF45 E..@E.6WDt.4BJoE
8A0  4214 E591 C233 2EFA C232 ACDA C232 6D7A B.e.B3..B2,ZB2m.
8A8  0000 0000 0000 0000 0000 0000 0278 477C ..........xG.
8B0  08CA 0421 4512 475F 444F 008F 4471 8AC3 .J.!E.G_DO..Dq.C
8B8  4514 3855 4512 EF12 4473 3D58 424A E22A E.8UE.o.Ds=XBJb*
8C0  4214 88C0 C232 9ED8 C232 BACA C232 429A B..@B2.ZB2:JB2B.
```

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8C8  0000 0000 0000 0000 0000 0000 0678 48A8 ..............xH(
8D0  08CA 0421 4512 7A1B 4450 2A72 4470 C645 .J.!E...DP*rDpFE
8D8  4514 6665 4513 24E8 4472 8276 424A 03F7 E.f.E.$hDr.vBJSw
8E0  4214 3664 C232 69FA C232 463A C232 C8AA B.6dB2i.B2F:B2H*
8E8  0000 0000 0000 0000 0000 0000 0278 49D4 .............xIT
8F0  08CA 0421 4512 B26C 4451 2A63 446F 60D1 .J.!E.2lDQ*cDo`Q
8F8  4514 95E5 4513 5F73 4471 2797 424A D1E5 E...eE._sDq'.BJQe
900  4213 C3BD C232 C1BA C232 89CA C232 E0CA B.C=B2A:B2.JB2`J
908  0000 0000 0000 0000 0000 0000 1278 4800 .............xK.
910  08CA 0421 4512 E39E 4452 2C4A 446E 9F3F .J.!E.c.DR,JDn.?
918  4514 C284 4513 9326 4470 6E73 424A CA14 E.B.E..&DpnsBJJ.
920  4213 23E2 C233 033A C232 98BA C232 EB5A B.#bB3.:B2.:B2kZ
928  0000 0000 0000 0000 0000 0000 0278 4C2C .............xL,
930  08CA 0421 4513 16CD 4453 1F53 446D AC3B .J.!E..MDS.SDm;
938  4514 EFE7 4513 C686 446F 8648 424A C662 E.ogE.H.Do.HBJF.
940  4213 1C3A C234 FB7A C234 250A C234 21FA B..:B4..B4%.B4!.
948  0000 0000 0000 0000 0000 0000 0278 4D58 .............xMX
950  08CA 0421 4513 4ABE 4454 0FE0 446C E9B9 .J.!E.J7DT.`DlY
958  4515 1F18 4513 FE98 446E CDFC 424A C409 E...E...DnM.BJD.
960  4212 CD11 C234 E9EA C235 2CCA C235 015A B.M.B4zJB5,JB5.Z
968  0000 0000 0000 0000 0000 0000 0278 4E84 .............xN.
970  08CA 0421 4513 2B52 4454 94F4 446C 6403 .J.!E..RDT.tDld.
978  4515 4CB8 4514 3195 446E 51BB 424A D2F9 E.L8E.1.DnQ;BJRY
980  4212 BB90 C234 99EA C234 1594 C234 ED3A B...B4.JB4..B4m:
988  0000 0000 0000 0000 0000 0000 0278 4FB0 .............xO0
990  08CA 0421 4513 B07D 4455 7CA2 446B 2761 .J.!E.0.DU.|Dk'a
998  4515 78F4 4514 66C1 446D 1F3C 424A D156 E.xtE.fADm.<BJQV
9A0  4212 2C60 C234 CE5A C234 E5AA C234 D83A B..`B4NZB4e*B4X:
9A8  0000 0000 0000 0000 0000 0000 0278 50DC .............xP\
9B0  08CA 0421 4513 E2C4 4456 1E80 446A 0E65 .J.!E.bDV..Dje.
9B8  4515 A432 4514 99ED 446C 1015 424A DACE E.$2E..mDl..BJZN
9C0  4211 D5E2 C236 2D4A C235 D7AA C236 0436 B.UbB6-*B5W*B6.6
9C8  0000 0000 0000 0000 0000 0000 0278 5208 .............xR.
9D0  08CA 0421 4514 1253 4457 1E3A 4469 09B7 .J.!E..SDW.:Di.7
9D8  4515 CEF7 4514 CC03 446B 1523 424A D28A E.NwE.L.Dk.#BJR.
9E0  4211 B4E5 C236 4A4A C235 E53A C235 C47A B..eB6J*B5e:B5D.
9E8  0000 0000 0000 0000 0000 0000 0278 5334 .............xS4
9F0  08CA 0421 4514 3B9C 4458 6656 4468 8C57 .J.!E.;.DXfVDh.W
9F8  4515 F7C5 4514 F93C 446A A09A 424A 59FD E.wEE.y<Dj .BJ9.
A00  4211 4DE6 C237 5C0A C237 59AA C237 4DAA B.MfB2\.B2Y*B7M*
A08  0000 0000 0000 0000 0000 0000 0278 5460 .............xT`
A10  08CA 0421 4514 6926 4459 27FA 4467 BD49 .J.!E.i&DY'.Dg=I
A18  4516 20F7 4515 285A 4469 DADE 424A BADF E. wE.(ZDiZ^BJ:_
A20  4211 099E C237 995A C237 4B3A C237 183A B...B7.ZB7K:B7.:
A28  0000 0000 0000 0000 0000 0000 0278 558C .............xU.
A30  08CA 0421 4514 94B1 4459 9EE2 4466 EB0A .J.!E..1DY.bDf..
A38  4516 477F 4515 5450 4469 215E 424A C669 E.G.E.TPDi!^BJFi
A40  4210 C6A5 C237 F4EA C237 8F9A C237 703A B.JZB7tJB7..B7p:
A48  0000 0000 0000 0000 0000 0000 0278 56B8 .............xV8
A50  08CA 0421 4514 C275 4459 B79F 4466 00BA .J.!E.BuDY..Df.:
A58  4516 6CF8 4515 801C 4468 2FDC 424A EA2E E.LxE...Dh/\BJJ.
A60  4210 840E C237 60DA C232 2BBA C236 E82A B...B7`ZB7+:B6x*
A68  0000 0000 0000 0000 0000 0000 0278 57E4 .............xWd
A70  08CA 0421 4514 E498 4459 FC98 4465 4EDE .J.!E.J.DY..DeN^
A78  4516 9005 4515 A8C4 4467 863A 424A F322 E..UE.(DDg.:BJs"
A80  4210 4BA6 C238 00FA C237 A9EA C237 969A B.K&B8..B7)JB7..
```

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A03  0000  0000  0000  0000  0000  0000  0278  5910  ..............x..
A08  0BCA  0421  4515  13E5  445A  29B6  4464  93C7  .J.!E..E)Z).Dd.G
A98  4515  B494  4515  D162  4466  D368  424B  082F  E.4.E.QbDFSHBK./
AA0  4210  129A  C232  F37A  C237  B31A  C232  C29A  B...B/s.B7..B2B.
AA8  0000  0000  0000  0000  0000  0000  0278  5A3C  ..............xZ<
AB0  0BCA  0421  4515  3D6B  445A  D412  4463  C76C  .J.!E.=kDZT.DcGl
AB8  4515  0A4B  4515  FC40  5466  0FDA  424B  094A  E.ZhE..@DF.ZBK.J
AC0  41F0  60AB  C238  A0BA  C238  DAFA  C238  E27A  A.`+B8 :B8Z.B8B.
AC8  0000  0000  0000  0000  0000  0000  0278  5B68  ..............xLH
AD0  0BCA  0421  4515  669E  445B  6091  4463  405F  .J.!E.f.DL`.Dc@_
AD8  4517  0070  4516  2652  4465  9181  424B  0EDF  E...E.&RDe..BK._
AE0  41FA  537B  C239  A1BA  C239  B54A  C239  382A  A.SxB9!:B9.JB98*
AE8  0000  0000  0000  0000  0000  0000  0278  5C94  ..............x\.
AF0  0BCA  0421  4515  9078  445C  3512  4462  5716  .J.!E..xD\5.DbW.
AF8  4517  2BD9  4516  522F  4464  B15D  424B  09A0  E.&YE.R/Dd1]BK.
B00  41E6  5324  C238  E4EA  C23B  DBZA  C239  4C5A  AvS$B8n.B8x.B9LZ
B08  0000  0000  0000  0000  0000  0000  0278  5DC0  ..............x]@
B10  0BCA  042?  4515  B3F6  445B  0E14  4461  6455  .J.!E.3vD[..DA$U
B18  4517  4658  4516  77F9  4464  068F  424A  FF95  E.HE.wyDd..BJ..
B20  41F3  2004  C23A  BUEA  C23A  40AA  C23A  182A  As .B:.;B:@*B:.*
B28  0000  0000  0000  0000  0000  0000  0278  5EEC  ..............x^l
B30  0BCA  0421  4515  D249  445D  B66F  4461  03E7  .J.!E.RID]6oDa.g
B38  4517  64A6  4516  97FD  4463  6CE3  424A  F9B5  E.d&E...DcLcBJy5
B40  41E0  5BF9  C23A  82B6  C23A  10EA  C23A  0C5A  AB[yB:.;B:.;B:.Z
B48  0000  0000  0000  0000  0000  0000  0278  6018  ..............x`.
B50  0BCA  0421  4515  F15A  445D  BDD9  4460  2DA9  .J.!E.qZD].YD`-)
B58  4517  7D8F  4516  B556  4462  9CE4  424B  1437  E...E.5VDb.bBK.7
B60  41ED  3659  C23B  DFFA  C23B  E6BA  C23C  20F4  Am1YB;^.B;?;B<..
B68  0000  0000  0000  0000  0000  0000  0278  6144  ..............xaD
B70  0BCA  0421  4516  132A  445B  7553  445F  6E93  .J.!E..*D[uS[_n.
B78  4517  99C0  4516  D5A0  4461  E4B6  424B  20C5  E..@E.U Da6BK-E
B80  41EA  3BF1  C23B  BB0A  C23B  6E4A  C23B  765A  AJ;B;?;ZB;nJB;vZ
B88  0000  0000  0000  0000  0000  0000  0278  6270  ..............xbP
B90  0BCA  0421  4516  321C  445D  438F  445F  0198  .J.!E.2.D]C.D_..
B98  4517  B6E9  4516  F798  4461  7F02  424B  4C36  E.8iE.w.Da..BKL6
BA0  41E7  EEB0  C23C  20FA  C23B  D35A  C23B  B40A  AGn.B< .B;SZB;4.
BA8  0000  0000  0000  0000  0000  0000  0278  639C  ..............xc.
BB0  0BCA  0421  4516  5A95  445D  3823  445E  48B4  .J.!E.Z.D]8#D^H4
BB8  4517  D71A  4517  198C  4460  CD80  424B  6441  E.W.E..<D`M.BKdA
BC0  41E4  E7AE  C23B  8C2A  C23C  3CEA  C23C  9F4A  AgN.B;.*B<<;B<.J
BC8  0000  0000  0000  0000  0000  0000  0278  64C8  ..............xdH
BD0  0BCA  0421  4516  7D76  445D  9C8A  445D  8457  .J.!E..vD]..D]$W
BD8  4517  F6D4  4517  3D10  4460  3000  424B  6AF8  E.vTE.=.D`0FBKjx
BE0  41E2  2CDA  C23D  09BA  C23C  6D5A  C23C  8D3A  AB;ZB=.:B<mZB<.:
BE8  0000  0000  0000  0000  0000  0000  0278  65F4  ..............xeT
BF0  0BCA  0421  4516  A30B  445D  104F  445D  4B5A  .J.!E.#.D]PO]JHZ
BF8  4518  1A17  4517  620C  445F  DD18  424B  7AE0  E...E.b\D_]BK.z`
C00  41DF  F9B3  C23C  CC1A  C23C  E23A  C23C  FECA  A_y3B<L.B<B:B<.J
C08  0000  0000  0000  0000  0000  0000  0278  6720  ..............xg
C10  0BCA  0421  4516  C7FE  445E  66D7  445C  7193  .J.!E.G.D^FWD\q.
C18  4518  3B4C  4517  6861  445F  0E95  424B  7AE0  E.;LE..aD_..BK.z`
C20  41DC  B591  C23D  BC2A  C23D  B7DA  C23D  A1Q6  A\5.B=.*B=ZZB=!.
C28  0000  0000  0000  0000  0000  0000  0678  684C  ..............xhL
C30  0BCA  0421  4516  E570  445F  4276  445B  ADF7  .J.!E.epD_BvD[-w
C38  4518  5770  4517  A854  445E  520C  424B  6C90  E.WpE.(TD^R.BKl.
C40  41D9  D786  C23D  4CAA  C23C  E8DA  C23C  B7FA  AYW.B=L*B<hZB<7.
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C48  0000 0000 0000 0000 0000 0000 0278 6978 ..............xix
C50  08CA 0421 4517 006A 445F EDE3 445B 94R7 .J.IE..jD_mcDL.7
C58  4518 7311 4517 C523 445E 3F2E 424B 63EF E.s.E.E#D^?.BKco
C60  41B8 9F8D C23E 0D6A C23D 6F8A C23D A31A AX.=B).jB=/.B=#.
C68  0000 0000 0000 0000 0000 0000 0678 6AA4 ..............xj$
C70  08CA 0421 4517 2011 4460 AC3F 445A 8633 .J.IE. .D`,?DZ.3
C78  4518 8F08 4517 E6C5 445D 3837 424B 5B78 E..IE.FED]87BK[x
C80  41B5 1458 C23D 61FA C23C E6AA C23C C0EA AU.]B=A.B(F*B<@J
C88  0000 0000 0000 0000 0000 0000 0278 6BD0 ..............xkP
C90  08CA 0421 4517 44B3 4461 735E 4459 FAF0 .J.IE.D3Da6^DY.p
C98  4518 B36D 4518 0058 445C B59D 424B 54DB E.3mE..XD\5.BKT[
CA0  41B2 9026 C23D 9EFA C23D 750A C23D BE0A AK.&B=..B=u.B=).
CA8  0000 0000 0000 0000 0000 0000 0278 6CFC ..............xl.
CB0  08CA 0421 4517 69E0 4462 5333 4459 7447 .J.IE.i`DbS3DYtG
CB8  4518 D7FF 4518 340D 445C 37E4 424B 481B E.W.E.4D\7dBK.K.
CC0  41B6 15D2 C23E 738A C23E 98CA C23F E70A AE.WR7s.B7.JB7g.
CC8  0000 0000 0000 0000 0000 0000 0278 6E28 ..............xn(
CD0  08CA 0421 4517 8BB4 4463 A15E 4458 B74E .J.IE..tDc!^DX.N
CD8  4518 FA00 4518 5B23 445B 53A5 4248 2FF0 E...E.[#D[SZBK/p
CE0  41CC CB0B C240 1F2A C23F DB0A C23F C48A ALH.B@.*B?L.B?D.
CE8  0000 0000 0000 0000 0000 0000 0278 6F54 ..............xoT
CF0  08CA 0421 4517 6A3A 4464 E3CA 4458 2B50 .J.IE.:jDdcJDX+P
CF8  4519 1A51 4518 7092 445A FF89 424B 1477 E..QE...DZ..BK.w
D00  41CA E4BB C240 9A9A C240 B0BA C240 BA6A AJdBB@..B@.:B@.J
D08  0000 0000 0000 0000 0000 0000 0278 7080 ..............xp.
D10  08CA 0421 4517 CA62 4465 EA4C 4457 D70E .J.IE.JbDeJLDWW.
D18  4519 389C 4518 A0DD 445A B366 424B 02D7 E.8.E. ]DZ3FBK.W
D20  41C9 1097 C240 EEA6 C241 07BA C241 24CA AI..B@n*BA..B4$J
D28  0000 0000 0000 0000 0000 0000 0278 71AC ..............xq,
D30  08CA 0421 4517 E87A 4467 B10E 4457 2462 .J.IE.hzDg..DW$b
D38  4519 5C00 4518 C462 445A 08FF 424A DC06 E.\.E.D.DZ..BJ\.
D40  41CA 6F38 C242 666A C242 222A C242 1EA4 AFn8BBfJBB"*BB.$
D48  0000 0000 0000 0000 0000 0000 0278 72D8 ..............xrX
D50  08CA 0421 4517 FFDA 4468 DD7A 4456 74FF .J.IE..ZDh].DVt.
D58  4519 754D 4518 E0CD 4459 6036 424A B9AF E.uME.`MDY`6BJ9/
D60  41C4 11E6 C241 FECA C241 DF2A C242 455A AD.fBA.JBA_*BBEZ
D68  0000 0000 0000 0000 0000 0000 0278 7404 ..............xt.
D70  08CA 0421 4518 12BC 4469 9C45 4456 4B70 .J.IE..(Dx.EDVKp
D78  4519 89A0 4518 F629 4459 3BA3 424A AAB3 E.. E.v)DY;#BJ*3
D80  41C3 140A C241 C55A C241 7C3A C241 71C4 AC..B4EZBA.:BAqJ
D88  0000 0000 0000 0000 0000 0000 0278 7530 ..............xu0
D90  08CA 0421 4518 223D 446A 0834 4455 4137 .J.IE."]Dj.4DUI7
D98  4519 970E 4519 0705 4458 9561 424A A542 E..^E...DX.eBJZB
DA0  41C1 2004 C241 DC4A C241 B56A C241 B51A AA .BA\JBA5JBA..
DA8  0000 0000 0000 0000 0000 0000 0278 765C ..............xv\
DB0  08CA 0421 4518 32CF 446A 4CA0 4455 4041 .J.IE.2ODjL DU@A
DB8  4519 A739 4519 1803 4458 386B 424A A5CB E.'9E...DX8kBJZK
DC0  41BF CD44 C242 6D5A C242 48DA C242 E40A A?MDBBmZBBHZBBd.
DC8  0000 0000 0000 0000 0000 0000 1278 7768 ..............xw.
DD0  08CA 0421 4518 43A4 446B 8478 4454 94A2 .J.IE.C$Dk.xDT."
DD8  4519 69F5 4519 2D6B 4457 91DA 424A 8528 E.9uE.-kDW.ZBJ.(
DE0  41BD B8E5 C243 518A C243 086A C243 003A A=8uBCQ.BC.jBC.:
DE8  0000 0000 0000 0000 0000 0000 0278 78B4 ..............xx4
DF0  08CA 0421 4518 590C 446C 800B 4453 BBF1 .J.IE.Y.DL..DSTq
DF8  4519 CF80 4519 4640 4456 BF10 424A 6FC5 E.O.E.F@DV?.BJoE
E00  41BB 2CF7 C244 217A C244 704DA C244 217A A;,wBD!.BD.ZBD!.
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E08  0000 0000 0000 0000 0000 0000 0278 79F0 ..............xy`
E10  08CA 0421 4518 7DD3 4460 627C 4453 4DCB .J.!E.}`b|DSM.DSK.
E18  4519 E841 4519 60F7 4456 5571 424A 5F52 E.hAE.`wDVUqBJ_R
E20  41BA 24D4 C243 B9CA C244 B246 C244 F05A A9.TBC9JBD2JBDpZ
E28  0000 0000 0000 0000 0000 0000 5278 7B0C ............Rx..
E30  08CA 0421 4518 894E 446F 1B6B 4452 D94B .J.!E...DnoKDRYK
E38  451A 0150 4519 7DD3 4455 E934 424A 556A E..PE...DUt4BJUJ
E40  41B7 C3B6 C246 436A C246 26AA C246 661A A7C5BFCJBF&*BFf.
E48  0000 0000 0000 0000 0000 0000 0278 7C38 ..............x.8
E50  08CA 0421 4518 90B2 446F B24B 4451 E584 .J.!E..2Do2.DQe.
E58  451A 17F3 4519 9620 4454 F8B8 424A 2AB5 E..sE..-DT.8BJ*5
E60  41B5 001D C246 242A C246 6F0A C247 4444 A5..BF$*BFo.BGJ*
E68  0000 0000 0000 0000 0000 0000 1278 7D64 ..............x.d
E70  08CA 0421 4518 AA2F 4471 72B2 4451 4234 .J.!E.*/DqR2DQB4
E78  451A 2949 4519 A9E1 4454 5D27 4249 F619 E.)!E.)aDT]'BIv.
E80  41B3 19F4 C246 BE5A C246 BB5A C247 76EA A3.tBF.ZBF.ZRGv.
E88  0000 0000 0000 0000 0000 0000 0278 7E90 ..............x..
E90  08CA 0421 4518 B495 4471 C96C 4451 1EAE .J.!E.4.DqlLDQ..
E98  451A 3421 4519 8560 4454 3C67 4249 F0E5 E.4!E.5`DT<gBIpe
EA0  41B2 7FB1 C247 9BEA C248 9C7A C248 FC3A A2.1BG.;BH..BH.:
EA8  0000 0000 0000 0000 0000 0000 0278 7FBC ..............x.<
EB0  08CA 0421 4518 C2BD 4471 CDEA 4450 1ABE .J.!E.BrDqM.DP>2
EB8  451A 40ED 4519 C320 4454 05CA 4249 F909 E.@mE.C DT.JBIv.
EC0  41B1 A6BE C24B 6E5A C24B 296A C24B C88A A1&ZBKnZBK)JBKH.
EC8  0000 0000 0000 0000 0000 0000 0278 80E8 ..............x.H
ED0  08CA 0421 4518 D914 4471 6196 4450 5EE4 .J.!E.Y.Dqa.DP^d
ED8  451A 5281 4519 D6AC 4453 B4BB 424A 151C E.R.E.V,DS.;BJ..
EE0  41B0 05DE C24C 6776 C24B D506 C24B B6EA A0. BLg.BKU.BK6.
EE8  0000 0000 0000 0000 0000 0000 0678 8214 ..............x..
EF0  08CA 0421 4518 F290 4471 C77H 444E 9316 .J.!E.r.DqG.DD..
EF8  451A 69D0 4519 F0EB 4452 BF3F 424A 1703 E.iJE.pkDR??BJ..
F00  416D 65ED C24B 44EA C24B 2EFA C24B A7D6 A-emBKDjBK/.BK'Z
F08  0000 0000 0000 0000 0000 0000 0678 8340 ..............x.@
F10  08CA 0421 4519 1192 4472 3A05 444E EB44 .J.!E...Dr:.DNkD
F18  451A 8717 451A 1084 4452 1C30 424A 1A91 E...E..4DR.0BJ..
F20  416B 6CC3 C24B BBDA C24B 79FA C24B 723A A+lCBK.ZBKy.BKr:
F28  0000 0000 0000 0000 0000 0000 0278 846C ..............x.l
F30  08CA 0421 4519 346E 4472 FEE4 444E C53E .J.!E.4nDr.pDNE?
F38  451A AAF1 451A 359A 4452 0235 424A 1593 E.*qE.5.DR.5BJ..
F40  41AA 3708 C24C 78AA C24B FF3A 433E 7E67 A*7.BL.xBK.:C>~g
F48  0000 0000 0000 0000 0000 0000 0278 8598 ..............x..
F50  08CA 0421 4519 5601 4474 0808 444E BAFE .J.!E.V.Dt..DN:.
F58  451A CF07 451A 5A6E 4452 0107 424A 06F1 E.O.E.ZnDR..BJ.q
F60  41A9 3902 C24C 141A C24B 9DAA C24B A40A A)9.BL..BK.*BK$.
F68  0000 0000 0000 0000 0000 0000 0278 86C4 ..............x.D
F70  08CA 0421 4519 6FEB 4475 AF36 444E 4406 .J.!E.okDu/6DND.
F78  451A E059 451A 7AA7 4451 920A 4249 DF5B E.mYE..'DQ..BI_C
F80  41A7 76CC C24B EF2A C24B ECAA C24C 663A A'vLBK*BKL*BLf:
F88  0000 0000 0000 0000 0000 0000 1278 87F0 ..............x.p
F90  08CA 0421 4519 B41E 4477 '2A84 444D 94C3 .J.!E...Dw*.DM.C
F98  451B 04F4 451A 94AB 4450 E945 4249 BA58 E..tE..+DPiEBI:C
FA0  41A5 6BFE C24C 362A C24C 0556 C24C 437A A%k.BL6*BL.VBLCz
FA8  0000 0000 0000 0000 0000 0000 5678 891C ............Vx..
FB0  08CA 0421 4519 9656 4478 B18E 444C B752 .J.!E..VDx1.DL7R
FB8  451B 1A76 451A A006 4450 11EB 4249 92F0 E..vE.-.DP.kBI.p
FC0  41A3 08A1 C24C 748A C24C 4E4A C24C 3EAA A#.!BLt.BLNJBL>*
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FC8  0000 0000 0000 0000 0000 0000 0278 8A48 ..............x.H
FD8  4518 3311 451A C637 4450 06E5 4249 8517 E.3.E.F7DP.eBI..
FE8  0000 0000 0000 0000 0000 0000 0278 8874 ..............x.t
FF8  4518 4FFC 451A E3F6 444F ED56 4249 7C6E E.O.E.cvDOmVBI..
1008 0000 0000 0000 0000 0000 0000 0000 2580 ..............%.
1018 4418 F100 4387 70A3 4417 7980 4315 6A66 D.q.C.p#D.y.C.jf
1028 0000 0000 0000 0000 0000 0000 0000 2500 ..............%P
1038 4419 2100 4387 68A1 4417 A8C0 4315 7266 D.!.C..!D.+@C.rf
1048 0000 0000 0000 0000 0000 0000 0000 2620 ..............&
1058 4419 5000 4389 DA9F 4417 D080 4315 7CF6 D.P.C.Z.D.P.C..v
1068 0000 0000 0000 0000 0000 0000 0000 2670 ..............&p
1078 4419 8600 4388 DF8D 4417 FE80 4315 851F D...C._=D...C...
1088 0000 0000 0000 0000 0000 0000 0000 26C0 ..............&@
1098 4419 8800 438C CE57 4418 31C0 4315 923D D.H.C.NWD.1@C..=
10A8 0000 0000 0000 0000 0000 0000 0000 2710 ..............'.
10B8 4419 F700 436F 88F5 4418 5FC0 4315 9F5C D.w.C.8uD._@C..\
10C8 0000 0000 0000 0000 0000 0000 0000 2760 ..............'`
10D8 441A 2D00 4392 544B 4418 89C0 4315 B2B8 D.-.C.TKD..@C.2@
10E8 0000 0000 0000 0000 0000 0000 0000 27B0 ..............'0
10F8 441A 6B00 4395 108C 4418 B8C0 4315 BAE1 D.k.C...D.8@C.:a
1108 0000 0000 0000 0000 0000 0000 0000 2800 ..............(.
1118 441A A100 4396 76AD 4418 EC80 4315 C2E1 D.!.C.v-D.l.C.Ba
1128 0000 0000 0000 0000 0000 0000 0000 2850 ..............(P
1138 441A DB00 4399 136F 4419 18C0 4315 CDC3 D.[.C..oD..@C.MC
1148 0000 0000 0000 0000 0000 0000 0000 28A0 ..............(
1158 4418 1000 439B 7710 4419 5300 4315 D4A4 D...C.w.D.S.C.T$
1168 0000 0000 0000 0000 0000 0000 0000 26F0 ..............(p
1178 4418 5900 439E 6052 4419 8100 4315 DCA4 D.Y.C.`RD...C.\$
1188 4244 C7AE 4522 2F31 2D2D 2054 4522 2F31 BDG.E"/1-- TE"/1
```

ATTACHMENT 2

INPUT CO-RAWINSONDE FILE (CONTROL AND TAB)

UNITS SWITCH = 1
WINDS SWITCH = 0
OUTPUT SWITCH = 0
DEVICE SWITCH = 1
C.W. SWITCH = 0
SONDE SWITCH = 6
SURFACE VX = .00000 FT/SEC
SURFACE VY = .00000 FT/SEC
SURFACE WIND DIRECTION = .0000 DEGREES
SURFACE WIND SPEED = .00000 FT/SEC
STATION NUMBER = 1
DAY = 18
MONTH = 1
YEAR = 1984
ALTITUDE INCREMENT = 820.21
RELEASE TIME = 1615 ZULU
TROPOPAUSE WIND DIRECTION = 260.0 DEGREES
TROPOPAUSE TIME = 3660.0 SECONDS
TROPOPAUSE GEOPOTENTIAL HEIGHT = 56307.27 FEET
TROPOPAUSE DEW POINT = 99.90 DEG. C
TROPOPAUSE GEOMETRIC HEIGHT = 56540.71 FEET
TROPOPAUSE T.B. = 55.23
TROPOPAUSE PRESSURE = 69.91 MBS
TROPOPAUSE TEMPERATURE = -27.30 DEG. C
TROPOPAUSE RELATIVE HUMIDITY = 999.00 %
TROPOPAUSE WIND SPEED = 51.87 KNOTS
STATION LATITUDE = 28.4833
TERMINATION GEOPOTENTIAL HEIGHT = 113912.50 FEET
TERMINATION PRESSURE = 5.46 MBS
FLIGHT IDENTIFICATION = 0074120018
SONDE TYPE = 101

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ALTITUDE FEET	DIR DEG	SPD KTS	TEMP DEG C	DEW PT DEG C	PRESSURE MBS	RH PCT	AB HUM G/M3	DENSITY G/M3	IR N	VS KTS	SHR /SEC	VPR MBS	PW MM
5.00	.0	.0	16.60	16.60	1018.30	100.0	14.13	1215.76	356.7	342.8	.000	18.90	.0
250.00	211.9	8.1	20.32	20.32	989.81	100.0	17.70	1164.24	365.6	345.3	.032	23.98	4.0
500.00	210.4	10.3	20.09	20.03	961.71	99.6	17.33	1132.00	356.2	345.2	.009	23.45	8.4
750.00	212.7	10.4	18.47	18.32	934.32	99.0	15.66	1106.67	341.1	344.1	.002	21.08	12.6
1000.00	219.7	10.5	16.94	16.89	907.56	99.7	14.39	1081.18	328.2	343.2	.005	19.27	16.4
1250.00	224.0	10.2	15.47	15.47	881.41	100.0	13.23	1055.86	315.9	342.2	.003	17.62	19.9
1500.00	224.9	9.7	14.21	13.73	855.91	97.1	11.89	1030.45	302.4	341.3	.002	15.76	23.0
1750.00	220.4	9.6	13.48	11.25	831.05	86.4	10.10	1003.95	285.7	340.8	.003	13.35	25.8
2000.00	219.4	10.7	12.50	10.62	806.80	88.3	9.72	978.08	277.8	340.2	.008	12.81	28.3
2250.00	232.7	11.8	11.66	7.19	783.19	74.8	7.84	953.26	260.8	339.5	.005	10.30	30.5
2500.00	242.6	12.1	10.87	4.98	760.19	67.0	6.65	928.40	248.1	338.9	.001	8.72	32.3
2750.00	229.1	11.9	10.08	3.50	737.79	63.9	6.06	903.81	239.0	338.4	.003	7.92	33.9
3000.00	220.9	12.3	9.09	.78	715.99	56.3	4.97	880.76	227.2	337.7	.007	6.47	35.3
3250.00	208.8	14.1	6.93	.46	694.69	64.0	4.98	861.06	223.1	336.4	.013	6.44	36.5
3500.00	206.6	14.8	4.95	-4.15	673.88	52.0	3.50	842.04	209.7	335.1	.004	4.49	37.6
3750.00	202.6	13.8	3.51	-10.39	653.55	43.7	2.66	821.37	199.9	334.1	.006	3.40	38.4
4000.00	198.5	13.2	3.45	-23.29	633.76	11.9	.73	797.79	182.4	333.8	.005	.93	38.8
4250.00	196.3	13.8	2.27	-23.44	614.52	12.8	.72	776.87	172.7	333.1	.003	.92	39.0
4500.00	206.1	14.2	.46	-24.18	595.77	13.6	.68	758.16	173.3	332.0	.010	.86	39.1
4750.00	226.1	16.3	-1.74	-23.82	577.45	16.8	.71	740.78	169.6	330.7	.023	.89	39.3
5000.00	235.9	18.8	-3.69	-22.09	559.57	22.7	.84	722.96	166.5	329.5	.016	1.04	39.5
5250.00	236.7	19.5	-5.65	-21.19	542.13	28.6	.91	705.48	163.2	328.3	.003	1.13	39.7
5500.00	236.0	19.8	-7.64	-23.99	525.10	25.7	.73	688.56	158.2	327.1	.001	.89	39.9
5750.00	236.6	19.7	-9.30	-29.21	508.50	17.9	.45	671.15	152.5	326.0	.001	.54	40.1
6000.00	238.6	19.1	-10.88	-32.77	492.32	14.5	.32	653.77	147.8	325.0	.004	.39	40.2
6250.00	243.0	18.9	-12.90	-34.55	476.54	14.2	.27	637.75	143.9	323.8	.006	.32	40.2
6500.00	247.9	19.8	-15.06	-26.32	461.16	45.7	.69	622.06	143.3	322.5	.008	.82	40.4
6750.00	250.0	21.4	-16.82	-24.45	446.17	52.7	.74	605.93	140.1	321.4	.007	.88	40.5
7000.00	248.1	23.5	-18.41	-30.48	431.57	34.3	.43	589.94	134.4	320.3	.009	.50	40.7
7250.00	244.0	25.7	-20.24	-36.41	417.36	22.1	.23	574.75	129.7	319.2	.011	.27	40.8
7500.00	241.7	27.5	-22.02	-40.21	403.51	18.0	.16	559.67	125.8	318.0	.008	.18	40.8
7750.00	241.8	28.2	-23.81	-34.99	390.03	35.8	.27	544.79	123.3	316.9	.003	.31	40.9
8000.00	242.0	29.1	-25.45	-41.65	376.91	22.3	.16	530.02	119.2	315.8	.003	.18	40.9
8250.00	242.5	30.1	-27.11	-40.36	364.15	33.4	.18	515.50	116.2	314.8	.004	.21	41.0
8500.00	243.2	31.2	-28.85	-35.02	351.75	55.1	.28	501.45	113.7	313.7	.005	.31	41.0
8750.00	244.1	32.2	-30.69	-39.50	339.67	42.1	.18	487.95	110.0	312.5	.004	.20	41.1
9000.00	245.3	32.2	-32.30	-44.54	327.94	28.1	.10	474.29	106.4	311.4	.003	.11	41.1
9250.00	246.3	30.4	-34.52	-45.82	316.52	30.3	.09	462.03	103.6	310.0	.007	.10	41.1
9500.00	248.0	29.1	-36.57	-48.08	305.40	29.0	.07	449.68	100.7	308.7	.006	.08	41.2
9750.00	249.0	28.7	-38.22	-52.40	294.59	20.8	.04	436.82	97.6	307.6	.003	.05	41.2
10000.00	247.9	28.2	-40.25	-52.65	284.07	24.3	.04	424.90	95.0	306.2	.003	.04	41.2
10250.00	247.4	28.0	-42.00	-54.72	273.85	23.2	.03	412.73	92.2	305.1	.001	.04	41.2
10500.00	247.0	28.3	-44.09	-56.36	263.93	23.8	.03	401.40	89.6	303.7	.002	.03	41.2
10750.00	247.1	29.6	-46.14	-57.36	254.27	26.3	.02	390.21	87.1	302.3	.005	.02	41.2
11000.00	248.9	31.3	-47.95	-58.38	244.90	28.4	.02	378.85	84.6	301.1	.008	.02	41.2
11250.00	252.0	32.4	-50.14	-59.49	235.79	31.6	.02	368.34	82.2	299.7	.008	.02	41.2
11500.00	254.7	31.7	-52.58	-61.43	226.94	32.7	.01	358.42	80.0	298.0	.007	.01	41.2
11750.00	258.0	29.9	-54.64	-63.41	218.33	32.3	.01	348.08	77.6	296.6	.010	.01	41.2
12000.00	262.8	28.9	-56.91	-65.03	209.96	34.3	.01	338.25	75.4	295.1	.011	.01	41.2
12250.00	266.6	29.2	-58.88	-66.70	201.83	34.9	.01	328.15	73.2	293.7	.008	.01	41.2
12500.00	268.1	30.6	-60.17	99.90	193.97	999.0	99.99	317.27	70.7	292.9	.006	99.99	999.0
12750.00	266.4	33.0	-60.79	99.90	186.38	999.0	99.99	305.75	68.1	292.4	.010	99.99	999.0

11:51: 8 29 MAR, 1984 CORAWINSONDE TABDATA PAGE 1

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13000.00	[illegible]	45.0	-61.58	99.90	179.08	999.0	99.99	294.85	65.7	291.9	.014	99.99	999.0
13250.00	269.4	44.4	-62.23	99.90	172.01	999.0	99.99	284.11	63.3	291.4	.006	99.99	999.0
13500.00	267.4	43.9	-62.69	99.90	165.22	999.0	99.99	273.49	60.9	291.1	.005	99.99	999.0
13750.00	267.2	45.2	-63.29	99.90	158.68	999.0	99.99	263.42	58.7	290.7	.005	99.99	999.0
14000.00	[illegible]	45.9	-64.13	99.90	152.38	999.0	99.99	253.97	56.5	290.1	.013	99.99	999.0
14250.00	265.1	46.7	-64.17	99.90	146.29	999.0	99.99	245.05	54.6	289.4	.008	99.99	999.0
14500.00	265.4	47.6	-65.20	99.90	140.40	999.0	99.99	235.79	52.4	289.4	.004	99.99	999.0
14750.00	266.9	48.0	-64.94	99.90	134.84	999.0	99.99	226.56	50.6	290.2	.012	99.99	999.0
15000.00	268.7	47.7	-64.22	99.90	129.49	999.0	99.99	217.96	48.1	290.0	.011	99.99	999.0
15250.00	268.0	46.9	-66.22	99.90	124.31	999.0	99.99	209.28	46.6	288.7	.004	99.99	999.0
15500.00	267.5	46.0	-67.95	99.90	119.29	999.0	99.99	202.54	45.1	287.4	.005	99.99	999.0
15750.00	267.0	45.7	-69.68	99.90	114.45	999.0	99.99	195.95	43.6	286.2	.002	99.99	999.0
16000.00	263.5	45.1	-71.35	99.90	109.75	999.0	99.99	189.47	42.2	285.1	.009	99.99	999.0
16250.00	260.4	44.6	-72.62	99.90	105.23	999.0	99.99	182.86	40.7	284.2	.007	99.99	999.0
16500.00	260.2	43.9	-74.13	99.90	100.84	999.0	99.99	176.52	39.3	283.1	.003	99.99	999.0
16750.00	260.8	43.3	-75.38	99.90	96.64	999.0	99.99	170.21	37.9	282.2	.007	99.99	999.0
17000.00	258.4	42.4	-76.[illegible]	99.90	[illegible]	999.0	99.99	163.74	36.5	281.6	.015	99.99	999.0
17250.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	99.99	157.64	35.1	280.9	.013	99.99	999.0
17500.00	252.7	39.[illegible]	[illegible]	99.90	84.21	999.0	99.99	150.17	33.5	281.6	.010	99.99	999.0
17750.00	254.8	39.9	-79.94	99.90	81.54	999.0	99.99	143.68	32.0	281.8	.014	99.99	999.0
18000.00	256.8	40.[illegible]	[illegible]	99.90	77.91	999.0	99.99	137.65	30.7	281.8	.007	99.99	999.0
18250.00	256.4	41.6	-78.42	99.90	74.46	999.0	99.99	131.99	29.4	281.4	.005	99.99	999.0
18500.00	257.2	41.8	-78.03	99.90	71.19	999.0	99.99	126.67	28.2	281.4	.007	99.99	999.0
18750.00	262.8	44.5	-77.26	99.90	68.07	999.0	99.99	121.76	27.1	280.9	.009	99.99	999.0
19000.00	261.1	43.7	-77.53	99.90	65.07	999.0	99.99	116.78	26.0	280.6	.003	99.99	999.0
19250.00	246.5	35.4	-77.03	99.90	62.22	999.0	99.99	111.57	24.9	281.0	.008	99.99	999.0
19500.00	255.6	46.4	-73.38	99.90	60.16	999.0	99.99	105.44	23.5	282.9	.011	99.99	999.0
19750.00	265.5	43.7	-73.45	99.90	57.45	999.0	99.99	100.57	22.4	283.6	.015	99.99	999.0
20000.00	260.1	42.1	-72.43	99.90	55.27	999.0	99.99	95.92	21.4	284.3	.008	99.99	999.0
20250.00	254.4	41.8	-71.68	99.90	52.98	999.0	99.99	91.62	20.4	284.8	.005	99.99	999.0
20500.00	256.6	42.9	-71.61	99.90	50.80	999.0	99.99	87.62	19.6	284.9	.005	99.99	999.0
20750.00	258.1	43.1	-69.44	99.90	48.73	999.0	99.99	83.34	18.6	286.4	.009	99.99	999.0
21000.00	256.8	44.7	-67.99	99.90	46.75	999.0	99.99	79.39	17.7	287.4	.007	99.99	999.0
21250.00	253.3	42.8	-62.40	99.90	44.86	999.0	99.99	75.96	16.9	287.8	.006	99.99	999.0
21500.00	252.0	18.3	-65.56	99.90	43.06	999.0	99.99	72.27	16.1	289.1	.003	99.99	999.0
21750.00	254.3	18.2	-62.98	99.90	41.35	999.0	99.99	68.54	15.3	290.9	.003	99.99	999.0
22000.00	258.3	18.3	-61.53	99.90	39.72	999.0	99.99	65.39	14.6	291.9	.005	99.99	999.0
22250.00	257.1	18.6	-61.70	99.90	38.16	999.0	99.99	62.88	14.0	291.8	.002	99.99	999.0
22500.00	253.4	19.3	-62.12	99.90	36.66	999.0	99.99	60.53	13.5	291.5	.005	99.99	999.0
22750.00	254.2	19.1	-62.12	99.90	35.22	999.0	99.99	58.15	13.0	291.5	.002	99.99	999.0
23000.00	259.9	18.3	-61.44	99.90	33.84	999.0	99.99	55.69	12.4	292.0	.007	99.99	999.0
23250.00	265.6	17.1	-59.77	99.90	32.52	999.0	99.99	53.69	11.8	293.1	.008	99.99	999.0
23500.00	255.6	17.2	-59.37	99.90	31.26	999.0	99.99	50.94	11.3	293.4	.012	99.99	999.0
23750.00	251.9	18.1	-60.03	99.90	30.04	999.0	99.99	49.11	10.9	292.9	.006	99.99	999.0
24000.00	253.4	19.0	-60.60	99.90	28.87	999.0	99.99	47.32	10.5	292.6	.004	99.99	999.0
24250.00	262.6	19.7	-60.22	99.90	27.75	999.0	99.99	45.40	10.1	292.8	.013	99.99	999.0
24500.00	266.0	20.2	-59.13	99.90	26.67	999.0	99.99	43.41	9.7	293.6	.005	99.99	999.0
24750.00	263.9	20.4	-58.17	99.90	25.64	999.0	99.99	41.55	9.3	294.2	.003	99.99	999.0
25000.00	258.7	21.1	-57.75	99.90	24.65	999.0	99.99	39.87	8.9	294.5	.008	99.99	999.0
25250.00	259.8	22.9	-56.27	99.90	23.70	999.0	99.99	38.08	8.5	295.5	.008	99.99	999.0
25500.00	259.9	24.7	-54.11	99.90	22.80	999.0	99.99	36.27	8.1	297.0	.007	99.99	999.0
25750.00	259.6	26.4	-51.53	99.90	21.94	999.0	99.99	34.49	7.7	298.7	.007	99.99	999.0
26000.00	259.0	26.2	-51.80	99.90	21.12	999.0	99.99	33.24	7.4	298.5	.002	99.99	999.0
26250.00	258.3	26.0	-51.91	99.90	20.33	999.0	99.99	32.01	7.1	298.5	.001	99.99	999.0
26500.00	257.5	25.9	-51.66	99.90	19.57	999.0	99.99	30.78	6.9	298.6	.001	99.99	999.0
26750.00	256.6	26.4	-52.05	99.90	18.83	999.0	99.99	29.67	6.6	298.4	.002	99.99	999.0

27000.00	255.7	27.0	-52.65	99.90	18.13	999.0	99.99	28.64	6.4	298.0	.003	99.99	999.0
27250.00	257.9	27.7	-52.75	99.90	17.44	999.0	99.99	27.57	6.1	297.9	.005	99.99	999.0
27500.00	259.4	28.8	-52.54	99.90	16.79	999.0	99.99	26.51	5.9	298.0	.005	99.99	999.0
27750.00	258.8	30.5	-51.75	99.90	16.16	999.0	99.99	25.43	5.7	298.6	.007	99.99	999.0
28000.00	255.9	32.0	-51.47	99.90	15.55	999.0	99.99	24.44	5.4	298.8	.009	99.99	999.0
28250.00	253.5	33.6	-50.59	99.90	14.97	999.0	99.99	23.54	5.2	298.7	.012	99.99	999.0
28500.00	248.2	33.9	-50.86	99.90	14.41	999.0	99.99	22.59	5.0	299.2	.008	99.99	999.0
28750.00	246.5	34.4	-50.11	99.90	13.88	999.0	99.99	21.67	4.8	299.7	.005	99.99	999.0
29000.00	247.6	35.8	-49.55	99.90	13.36	999.0	99.99	20.82	4.6	300.1	.006	99.99	999.0
29250.00	249.6	35.9	-49.52	99.90	12.87	999.0	99.99	20.04	4.5	300.1	.005	99.99	999.0
29500.00	252.4	35.2	-49.90	99.90	12.39	999.0	99.99	19.33	4.3	299.8	.008	99.99	999.0
29750.00	256.8	33.9	-49.35	99.90	11.93	999.0	99.99	18.57	4.1	300.2	.010	99.99	999.0
30000.00	259.0	33.1	-48.40	99.90	11.49	999.0	99.99	17.81	4.0	300.8	.008	99.99	999.0
30250.00	260.4	35.1	-47.19	99.90	11.07	999.0	99.99	17.06	3.8	301.6	.008	99.99	999.0
30500.00	260.1	36.7	-46.47	99.90	10.66	999.0	99.99	16.38	3.7	302.1	.006	99.99	999.0
30750.00	257.8	38.1	-46.41	99.90	10.27	999.0	99.99	15.78	3.5	302.2	.008	99.99	999.0
31000.00	254.1	37.2	-46.58	99.90	9.90	999.0	99.99	15.22	3.4	302.0	.010	99.99	999.0
31250.00	250.1	36.3	-46.72	99.90	9.53	999.0	99.99	14.67	3.3	301.9	.011	99.99	999.0
31500.00	247.7	35.2	-48.25	99.90	9.18	999.0	99.99	14.22	3.2	300.9	.008	99.99	999.0
31750.00	245.2	34.1	-49.81	99.90	8.84	999.0	99.99	13.80	3.1	299.9	.007	99.99	999.0
32000.00	244.8	34.7	-50.99	99.90	8.51	999.0	99.99	13.35	3.0	299.1	.002	99.99	999.0
32250.00	244.7	35.5	-52.12	99.90	8.20	999.0	99.99	12.92	2.9	298.3	.003	99.99	999.0
32500.00	244.2	35.9	-52.74	99.90	7.89	999.0	99.99	12.47	2.8	297.9	.002	99.99	999.0
32750.00	243.4	36.1	-53.10	99.90	7.59	999.0	99.99	12.02	2.7	297.7	.002	99.99	999.0
33000.00	242.0	37.3	-52.10	99.90	7.31	999.0	99.99	11.52	2.6	298.3	.006	99.99	999.0
33250.00	240.8	38.9	-50.55	99.90	7.04	999.0	99.99	11.01	2.5	299.4	.007	99.99	999.0
33500.00	243.1	40.2	-48.87	99.90	6.78	999.0	99.99	10.52	2.3	300.5	.008	99.99	999.0
33750.00	245.4	40.6	-47.23	99.90	6.53	999.0	99.99	10.06	2.2	301.6	.007	99.99	999.0
34000.00	247.7	40.5	-45.60	99.90	6.29	999.0	99.99	9.63	2.1	302.7	.006	99.99	999.0
34250.00	247.1	40.9	-43.61	99.90	6.06	999.0	99.99	9.20	2.1	304.0	.002	99.99	999.0
34500.00	999.0	999.0	-41.48	99.90	5.84	999.0	99.99	8.79	2.0	305.4	.999	99.99	999.0
34750.00	999.0	999.0	-39.71	99.90	5.63	999.0	99.99	8.41	1.9	306.6	.999	99.99	999.0

ROCS 13

ATTACHMENT 3

OUTPUT TABULAR FILE

TEST NUMBER: 000000 AGENT NUMBER: 4077 CAPE CANAVERAL AFS, FLORIDA RUN DATE: 29 MAR 1984 RUN TIME: 14:49:54
1515Z 10 JAN 1984 SUPER LOKI DATASONDE FWN-10D

MSQ TRACKING DATA								DIFFERENCE/MINUTE				
TIME SEC	AZIMUTH	ELEVATION	RNG MTS	HGT MTS	HR	MIN	SEC	TIME	AZIMUTH	ELEVATION	RANGE	ALTITUDE
54924.00	97.720	63.452	68727.75	61559.18	15	16	4	.00	.00	.00	.00	.00
54994.00	96.648	62.243	66771.56	59168.38	15	16	34	30.00	-2.14	-2.42	-3912.38	-4781.59
55624.00	96.273	61.079	65131.97	57091.23	15	17	4	30.00	-.75	-2.33	-3279.19	-4154.61
55654.00	95.391	60.175	63606.01	55263.92	15	17	34	30.00	-1.76	-1.81	-3051.92	-3654.63
55684.00	94.002	59.529	62061.53	53524.64	15	18	4	30.00	-2.76	-1.29	-3088.96	-3384.56
55714.00	92.669	59.009	60687.93	52105.62	15	18	34	30.00	-2.68	-1.04	-2747.20	-2932.02
55744.00	91.239	58.485	59399.99	50718.74	15	19	4	30.00	-2.86	-1.05	-2575.88	-2773.77
55774.00	89.885	58.069	58147.28	49427.45	15	19	34	30.00	-2.71	-.83	-2605.41	-2582.59
55804.00	87.088	57.598	57064.67	48310.71	15	20	4	30.00	-1.59	-.74	-2165.23	-2233.48
55834.00	82.578	57.108	56141.60	47219.36	15	20	34	30.00	-3.42	-1.18	-1846.14	-2182.70
55864.00	80.825	56.200	55527.14	46221.23	15	21	4	30.00	-3.51	-1.82	-1228.91	-1996.24
55894.00	84.495	55.	54999.21	45278.80	15	21	34	30.00	-2.36	-1.36	-1063.86	-1884.86
[illegible]	[illegible]	[illegible]	[illegible]	44330.41	15	22	4	30.00	-3.69	-.81	-1528.68	-1696.80
55954.00	81.	54.	[illegible]	43424.87	15	22	34	30.00	-3.89	-.86	-1414.31	-1624.67
55984.00	8[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	30.00	-2.02	-1.36	-1042.05	-1584.73
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	30.00	1.03	-1.90	-673.01	-1360.77
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	30.00	.45	-1.95	-337.43	-1349.10
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.47	-2.26	-151.54	-1399.48
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	30.00	.25	-2.16	-72.91	-1509.14
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	30.00	.39	-2.16	91.49	-1472.23
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	30.00	-.13	-2.23	261.16	-1200.92
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	30.00	-.79	-1.30	327.91	-1115.39
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	30.00	-1.01	-2.66	628.15	-1248.98
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	15	32	34	30.00	-.20	-2.54	993.31	-970.84
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	30.00	.15	-2.49	1130.22	-845.04
[illegible]	[illegible]	[illegible]	[illegible]	36233.03	15	33	34	30.00	-.48	-2.83	1313.45	-1103.45
[illegible]	[illegible]	[illegible]	[illegible]	35773.10	15	34	4	30.00	-.45	-2.30	1198.03	-879.86
[illegible]	[illegible]	[illegible]	[illegible]	353[illegible]	15	34	34	30.00	-.47	-2.22	1111.06	-936.98
[illegible]	[illegible]	[illegible]	[illegible]	34843.38	15	35	4	30.00	-.24	-2.18	1127.18	-923.32
[illegible]	[illegible]	36.936	57094.05	34476.15	15	35	34	30.00	-.96	-1.96	1243.61	-774.46
[illegible]	77.638	35.955	57678.23	34041.12	15	36	4	30.00	-.98	-1.96	1168.37	-870.05
[illegible]	77.169	35.160	58204.62	33699.72	15	36	34	30.00	-.90	-1.59	1052.79	-662.81
[illegible]	76.668	34.224	58838.84	33324.87	15	37	4	30.00	-1.04	-1.77	1268.42	-749.69
[illegible]	76.472	33.497	59512.45	33041.81	15	37	34	30.00	-.39	-1.55	1347.23	-566.13
56284.00	75.924	32.586	60106.94	32576.33	15	38	4	30.00	-1.10	-1.82	1188.98	-930.96
56014.00	75.630	31.670	60896.30	32185.84	15	38	34	30.00	-.59	-1.83	1578.71	-778.98
56044.00	75.561	31.131	61440.77	31985.36	15	39	4	30.00	-.14	-.08	1088.94	-402.95
56074.00	75.471	30.403	62193.72	31704.35	15	39	34	30.00	-.18	-1.46	1505.91	-562.02
56104.00	75.387	29.700	62957.64	31431.18	15	40	4	30.00	-.17	-1.41	1527.84	-546.34
56134.00	75.159	28.852	63703.11	30987.38	15	40	34	30.00	-.46	-1.70	1490.93	-887.61
56164.00	74.978	28.272	64432.05	30275.55	15	41	4	30.00	-.36	-1.16	1457.90	-423.65
56194.00	74.773	27.592	65155.63	30443.84	15	41	34	30.00	-.41	1.36	1447.15	-663.43
56224.00	74.611	27.025	65882.69	30209.97	15	42	4	30.00	-.32	-1.13	1454.12	-467.74
56254.00	74.679	26.433	66608.62	29933.32	15	42	34	30.00	.14	-1.19	1451.68	-553.30
56284.00	74.849	25.774	67366.31	29584.32	15	43	4	30.00	.34	-1.32	1515.38	-698.01
56314.00	74.933	25.211	68125.87	29319.99	15	43	34	30.00	.17	-1.13	1519.13	-528.65
56344.00	75.057	24.646	68933.19	29057.51	15	44	4	30.00	.25	-1.13	1614.63	-524.96
56374.00	75.181	24.213	69690.31	28902.90	15	44	34	30.00	.25	-.87	1514.25	-309.22
56404.00	75.117	23.567	70429.25	28489.53	15	45	4	30.00	-.13	-1.29	1477.88	-826.75
56434.00	75.110	23.127	71183.06	28298.62	15	45	34	30.00	-.01	-.68	1507.63	-381.82
56464.00	74.977	22.601	71986.31	28015.44	15	46	4	30.00	-.27	-1.05	1606.50	-566.36
56494.00	75.027	22.136	72787.44	27786.75	15	46	34	30.00	.10	-.93	1602.25	-457.37
56524.00	75.034	21.684	73557.69	27548.69	15	47	4	30.00	.02	-.90	1540.50	-476.13
56554.00	74.973	21.272	74324.56	27344.65	15	47	34	30.00	-.12	-.82	1533.75	-408.07
56584.00	74.935	20.897	75050.25	27158.34	15	48	4	30.00	-.08	-.75	1451.38	-372.62
56614.00	74.883	20.546	75731.75	26976.53	15	48	34	30.00	-.10	-.70	1363.00	-363.63
56644.00	74.828	20.212	76407.50	26805.63	15	49	4	30.00	-.11	-.67	1351.50	-341.80

ROCS 3

56624.00	74.820	19.765	77100.62	26468.43	15	44	34	30.00	-.02	-.90	1386.25	-634.39
56654.00	74.789	19.453	77753.44	26319.16	15	45	4	30.00	-.06	-.62	1305.63	-338.55
56684.00	74.775	19.110	78417.50	26106.87	15	45	34	30.00	-.03	-.68	1328.13	-424.59
56714.00	74.766	18.801	79107.94	25938.34	15	46	4	30.00	-.02	-.62	1380.88	-337.05
56744.00	74.624	18.545	79776.44	25824.74	15	46	34	30.00	-.12	-.51	1335.00	-227.20
56824.00	74.818	18.173	80422.62	25544.50	15	47	4	30.00	-.01	-.74	1294.38	-560.48
56854.00	74.655	17.836	81055.25	25296.59	15	47	34	30.00	.07	-.68	1265.25	-495.81
56884.00	74.822	17.519	81681.00	25067.11	15	48	4	30.00	-.06	-.63	1251.50	-458.97
56914.00	74.727	17.304	82278.00	24960.56	15	48	34	30.00	-.19	-.43	1194.00	-213.12
56944.00	74.730	17.038	82880.69	24779.73	15	49	4	30.00	.01	-.53	1205.38	-361.63
56974.00	74.775	16.792	83444.37	24610.15	15	49	34	30.00	.09	-.49	1127.38	-439.16
57004.00	74.915	16.516	83992.62	24389.32	15	50	4	30.00	.28	-.55	1096.50	-441.67
57034.00	74.950	16.296	84517.31	24234.22	15	50	34	30.00	.07	-.44	1049.38	-310.20
57064.00	75.032	16.073	85040.31	24070.71	15	51	4	30.00	.16	-.45	1046.00	-327.02
57094.00	75.036	15.836	85591.94	23891.90	15	51	34	30.00	.01	-.47	1103.25	-357.63
57124.00	75.058	15.645	86150.94	23776.39	15	52	4	30.00	.04	-.38	1118.00	-231.02
57154.00	75.038	15.395	86712.12	23571.44	15	52	34	30.00	-.04	-.50	1122.38	-409.91
57184.00	74.998	15.195	87202.37	23415.27	15	53	4	30.00	-.08	-.40	980.50	-312.34
57214.00	74.975	15.022	87616.31	23274.75	15	53	34	30.00	-.05	-.35	827.88	-281.03
57244.00	75.079	14.827	87980.75	23084.55	15	54	4	30.00	.21	-.39	728.88	-380.41
57274.00	75.179	14.639	88393.19	22916.14	15	54	34	30.00	.20	-.38	824.88	-336.80
57304.00	75.298	14.496	88849.06	22823.15	15	55	4	30.00	.24	-.29	911.75	-185.99
57334.00	75.392	14.310	89290.81	22660.83	15	55	34	30.00	.19	-.37	683.50	-324.63
57364.00	75.418	14.136	89754.94	22517.58	15	56	4	30.00	.05	-.35	928.25	-286.50
57394.00	75.480	13.998	90270.87	22441.02	15	56	34	30.00	.12	-.27	1031.88	-153.13
57424.00	75.480	13.794	90756.69	22252.21	15	57	4	30.00	.00	-.41	971.63	-377.60
57454.00	75.424	13.615	91168.37	22079.83	15	57	34	30.00	-.11	-.36	823.38	-344.27
57484.00	75.390	13.539	91572.62	22062.58	15	58	4	30.00	-.07	-.15	808.50	-34.50
57514.00	75.357	13.317	91993.81	21822.12	15	58	34	30.00	-.07	-.44	842.38	-480.92
57544.00	75.331	13.160	92514.25	21702.73	15	59	4	30.00	-.05	-.31	1040.88	-238.78
57574.00	75.293	13.005	93049.25	21587.76	15	59	34	30.00	-.08	-.31	1070.00	-229.93
57604.00	75.187	12.799	93546.75	21379.07	16	0	4	30.00	-.21	-.41	995.00	-417.38
57634.00	75.080	12.681	94019.56	21302.16	16	0	34	30.00	-.21	-.24	945.63	-153.82
57664.00	75.011	12.567	94506.62	21232.57	16	1	4	30.00	-.14	-.23	974.13	-139.18
57694.00	74.859	12.402	94980.50	21076.77	16	1	34	30.00	-.30	-.33	947.75	-311.61
57724.00	74.725	12.254	95350.69	20922.43	16	2	4	30.00	-.27	-.30	740.38	-308.67
57754.00	74.667	12.192	95648.06	20889.00	16	2	34	30.00	-.12	-.12	594.75	-66.88
57784.00	74.646	12.070	95856.44	20736.96	16	3	4	30.00	-.04	-.24	416.75	-304.08
57814.00	74.648	11.988	96081.06	20651.95	16	3	34	30.00	.00	-.17	449.25	-170.01
57844.00	74.520	11.858	96355.19	20499.68	16	4	4	30.00	-.25	-.26	548.25	-304.55
57874.00	74.437	11.698	96670.31	20306.92	16	4	34	30.00	-.17	-.32	630.25	-385.52
57904.00	74.372	11.592	97032.50	20210.36	16	5	4	30.00	-.13	-.21	724.38	-193.12
57934.00	74.334	11.485	97399.12	20111.37	16	5	34	30.00	-.08	-.21	733.25	-197.97
57964.00	74.167	11.313	97730.31	19894.22	16	6	4	30.00	-.33	-.35	662.38	-434.31
57994.00	73.961	11.194	97983.94	19749.24	16	6	34	30.00	-.41	-.24	507.25	-289.95
58024.00	73.941	11.156	98142.56	19719.29	16	7	4	30.00	-.04	-.08	317.25	-59.91
58054.00	73.923	11.103	98329.81	19669.36	16	7	34	30.00	.06	-.11	374.50	-99.84
58084.00	74.082	11.001	98587.00	19551.35	16	8	4	30.00	.22	-.20	514.38	-236.02
58114.00	74.090	10.853	98928.75	19320.79	16	8	34	30.00	.01	-.30	683.50	-361.12
58144.00	74.104	10.714	99356.31	19221.70	16	9	4	30.00	.03	-.28	855.13	-298.18
58174.00	74.084	10.638	99680.82	19192.95	16	9	34	30.00	-.04	-.15	1049.13	-47.51
58204.00	74.027	10.576	100408.80	19196.89	16	10	4	30.00	-.11	-.12	1055.88	-2.12
58234.00	73.872	10.462	100852.40	19095.40	16	10	34	30.00	-.31	-.22	887.25	-202.98

* * * TEMPERATURE COMPARISON * * *

ROCKETSONDE — RAWINSONDE

TEST Nos: 000000

ROCKET LAUNCH TIME RELEASE VOL FWR 104

LAUNCH TRANSFER SENSE FLOW DE — 10152 18 JAN 1984

10152 18 JAN 1984

ALTITUDE METERS	TEMPERATURE DEGREES C ROCKET	RAWINSONDE	DIFFERENCE
19250	-75.66	-77.07	1.4
19500	-75.89	-74.38	-1.5
19750	-71.42	-73.45	2.0
20000	-70.91	-72.43	1.5
20250	-68.82	-71.68	2.9
20500	-67.82	-71.81	4.0
20750			
21000	-65.[illegible]		
21250			
21500			
21750			
22000			
22250			
22500			
22750			
23000			
23250			
23500			
23750			
24000			
24250			
24500			
24750			
25000			
25250			
25500			
25750			
26000			
26250			
26500			
26750			
27000			
27250			
27500			
27750	-51.13	-52.75	1.6
28000	-48.49	-51.47	3.0
28250	-47.49	-51.59	4.1
28500	-46.99	-50.86	3.9
28750	-46.68	-50.11	3.4
29000	-46.28	-49.55	2.8
29250	-46.71	-49.52	2.8
29500	-46.30	-49.90	3.6
29750	-45.12	-49.35	4.2

ROCS 3

TEST NUMBER 0000
CAPE CANAVERAL AFS, FLORIDA
1515Z 18 JAN 1984

SOVIET LOKI PWN-100

ALT GEOMM	DIR DEG	SPD MPS	TEMP K	TEMP CORR	PRESS MBS	DENSITY G/M3	RF MPS	VS MPS	SHR /SEC
20000	244	13	202.24	-.46	999.9999	999.9999	7.24	285.20	.999
21000	236	14	206.58	-.44	46.6581	79.0216	5.14	288.25	.003
22000	249	17	211.30	-.45	39.8551	65.7097	4.69	291.52	.005
23000	271	16	212.92	-.47	33.9738	55.5876	5.61	292.64	.006
24000	260	21	216.46	-.48	29.0207	46.7066	5.90	295.06	.006
25000	253	23	217.93	-.50	24.8342	39.7002	3.29	296.06	.003
26000	256	26	219.90	-.51	21.2844	33.7199	5.32	297.39	.003
27000	251	22	222.04	-.51	18.2718	28.6684	5.92	298.84	.003
28000	252	32	224.66	-.57	15.6962	24.3400	8.32	300.59	.005
29000	259	32	226.32	-.53	13.5159	20.8008	5.49	301.74	.003
30000	256	32	228.74	-.60	11.6488	17.7414	9.77	303.31	.001
31000	245	35	224.24	-.59	10.0374	15.5944	9.86	300.31	.007
32000	247	34	222.31	-.65	8.6278	13.5207	7.66	299.02	.001
33000	249	35	228.23	-.73	7.4280	11.3387	12.41	302.97	.005
34000	237	36	231.15	-.75	6.4130	9.6655	12.42	304.90	.001
35000	243	38	236.51	-.83	5.5516	8.1776	14.84	308.42	.004
36000	253	41	243.75	-.87	4.8231	6.8933	14.69	313.11	.008
37000	254	41	247.90	-.79	4.2067	5.9119	14.10	315.76	.001
38000	251	36	255.67	-.99	3.6791	5.0131	20.78	320.67	.006
39000	254	30	257.91	-.87	3.2276	4.3598	19.92	322.07	.006
40000	267	27	258.77	-.95	2.8329	3.8140	20.68	322.61	.007
41000	272	24	263.45	-1.07	2.4900	3.2927	23.06	325.51	.004
42000	252	17	265.83	-.95	2.1929	2.8739	22.54	326.98	.010
43000	199	16	264.26	-1.08	1.9314	2.5462	25.29	326.01	.015
44000	183	23	265.60	-1.24	1.7010	2.2312	27.06	326.84	.009
45000	183	29	268.07	-1.25	1.4997	1.9490	28.79	328.36	.006
46000	185	29	268.92	-1.41	1.3233	1.7142	31.89	328.88	.001
47000	185	27	272.06	-1.49	1.1687	1.4966	34.10	330.79	.002
48000	182	25	273.31	-1.45	1.0332	1.3170	36.56	331.55	.002
49000	174	24	269.69	-1.54	.9131	1.1795	37.86	329.35	.003
50000	163	26	268.58	-1.99	.8060	1.0455	42.69	328.66	.005
51000	160	26	270.55	-2.15	.7118	.9166	45.25	329.87	.001
52000	162	26	271.30	-2.24	.6288	.8075	47.32	330.33	.001
53000	167	26	270.95	-2.33	.5557	.7145	49.64	330.11	.002
54000	170	26	270.21	-2.63	.4909	.6329	54.41	329.66	.002
55000	177	24	268.94	-2.84	.4335	.5615	57.90	328.89	.004
56000	191	19	267.28	-2.97	.3826	.4987	60.46	327.87	.007
57000	214	15	263.20	-3.41	.3369	.4460	64.42	325.36	.008
58000	245	14	258.60	-3.91	.2966	.3995	68.68	322.50	.008
58129	249	14	258.01	-3.97	.2917	.3939	69.24	322.13	.008

MAXIMUM ALTITUDE 61559

TEST NUMBER 0000
CAPE CANAVERAL AFS, FLORIDA
15 5Z 18 JAN 1984

SUPER LOKI TWN TOD

ALT GEOMM	DIR DEG	SPD MFS	TEMP K	TEMP CORR	PRESS MBS	DENSITY G/M3	RF MFS	VS MFS	SHR /SEC
20000	224	13	202.24	-.46	999.9999	999.9999	7.24	285.20	.999
20250	230	14	204.33	-.45	53.0085	90.3721	3.23	286.62	.008
20500	240	11	205.53	-.45	50.8632	86.2151	5.67	287.51	.015
20750	236	10	206.62	-.44	48.8160	82.2270	3.88	288.42	.006
21000	236	14	206.58	-.44	46.8581	79.0216	5.14	288.25	.016
21250	234	18	207.78	-.45	44.9806	75.4187	2.76	289.08	.017
21500	244	19	209.02	-.47	43.1908	71.9885	6.64	289.94	.013
21750	247	18	211.25	-.45	41.4843	68.4129	3.96	291.49	.007
22000	249	17	211.30	-.45	39.8551	65.7097	4.69	291.52	.005
22250	251	17	211.40	-.46	38.2736	63.1002	6.00	291.59	.004
22500	261	18	211.98	-.45	36.7491	60.4611	2.97	291.99	.010
22750	272	18	212.68	-.46	35.3516	57.9083	5.27	292.47	.013
23000	271	15	212.92	-.47	33.9738	55.5876	5.61	292.64	.008
23250	263	15	213.24	-.48	32.6534	53.1739	5.64	293.33	.009
23500	253	18	215.04	-.47	31.3901	50.8651	5.27	294.09	.013
23750	253	20	216.50	-.47	30.1807	48.7912	5.42	294.40	.007
24000	260	21	216.46	-.46	27.0207	46.7066	5.90	295.06	.010
24250	264	21	217.10	-.46	27.9103	44.7882	5.28	295.49	.007
24500	263	21	217.25	-.49	26.8442	43.0470	7.36	295.60	.002
24750	258	22	217.23	-.48	25.8191	41.4074	5.77	295.58	.008
25000	253	23	217.93	-.50	24.8342	39.7002	3.79	296.06	.010
25250	252	24	218.80	-.52	23.8911	38.0410	7.82	296.64	.004
25500	254	25	219.41	-.52	22.9868	36.4983	8.59	297.06	.005
25750	256	25	219.91	-.51	22.1187	35.0402	7.50	297.40	.004
26000	256	26	219.90	-.51	21.2844	33.7199	5.32	297.39	.002
26250	254	26	221.15	-.53	20.4840	32.2684	6.80	298.24	.004
26500	252	26	221.91	-.53	19.7173	30.9546	7.59	298.75	.003
26750	251	27	222.06	-.53	18.9807	29.7784	8.52	298.85	.002
27000	251	27	222.04	-.51	18.2718	28.6684	5.92	298.84	.003
27250	253	29	221.71	-.52	17.5890	27.6380	6.21	298.61	.006
27500	253	30	221.78	-.54	16.9313	26.5959	7.07	298.66	.006
27750	253	31	222.97	-.56	16.3000	25.4677	7.83	299.46	.005
28000	252	32	224.66	-.57	15.6962	24.3400	8.32	300.59	.003
28250	253	32	225.66	-.57	15.1182	23.3394	8.23	301.27	.002
28500	255	32	226.16	-.57	14.5633	22.4331	8.96	301.60	.003
28750	256	32	226.47	-.59	14.0297	21.5823	12.15	301.80	.003
29000	259	32	226.37	-.53	13.5159	20.8008	5.49	301.74	.007
29250	263	33	226.44	-.58	13.0210	20.0326	8.76	301.78	.010
29500	262	33	226.85	-.60	12.5448	19.2657	9.25	302.05	.001
29750	261	33	228.03	-.62	12.0873	18.4670	11.55	302.84	.004
30000	256	32	228.74	-.60	11.6488	17.7414	9.77	303.31	.009
30250	251	32	228.28	-.57	11.2261	17.1325	8.23	303.00	.011
30500	248	33	227.10	-.57	10.8174	16.5943	9.79	302.22	.009
30750	245	34	225.53	-.56	10.4213	16.0978	8.99	301.18	.007
31000	245	35	224.24	-.59	10.0374	15.5944	9.86	300.31	.002
31250	246	34	223.52	-.66	9.6661	15.0659	14.15	299.83	.005
31500	249	34	222.96	-.62	9.3074	14.5432	10.18	299.45	.006
31750	248	34	222.54	-.62	8.9614	14.0289	9.28	299.17	.002
32000	247	34	222.31	-.65	8.6278	13.5207	7.66	299.02	.003
32250	245	34	223.54	-.72	8.3075	12.9470	10.19	299.84	.004
32500	243	34	225.44	-.76	8.0014	12.3648	13.68	301.12	.006
32750	241	35	227.27	-.76	7.7084	11.8159	15.17	302.34	.006
33000	239	35	228.23	-.73	7.4280	11.3387	12.41	302.97	.005
33250	237	36	228.91	-.70	7.1588	10.8951	10.06	303.42	.004

RQCS 3

33500	234	36	229.60	-.72	6.9001	10.4697	12.38	303.88	.004
33750	236	36	230.16	-.72	6.6517	10.0681	11.75	304.25	.003
34000	237	36	231.15	-.75	6.4130	9.6655	12.42	304.90	.002
34250	239	36	232.53	-.80	6.1836	9.2644	14.43	305.81	.004
34500	239	36	233.86	-.79	5.9644	8.8851	13.52	306.69	.002
34750	240	37	235.19	-.79	5.7536	8.5227	13.38	307.56	.004
35000	243	38	236.51	-.83	5.5516	8.1776	14.84	308.42	.008
35250	245	39	237.96	-.85	5.3580	7.8442	15.46	309.37	.008
35500	248	40	239.50	-.86	5.1719	7.5231	15.57	310.36	.008
35750	250	40	241.55	-.86	4.9942	7.2030	15.21	311.69	.008
36000	253	41	243.75	-.87	4.8231	6.8933	14.69	313.11	.008
36250	254	41	245.48	-.86	4.6603	6.6137	16.45	314.22	.004
36500	255	42	247.19	-.86	4.5031	6.3466	18.32	315.30	.004
36750	255	41	247.56	-.82	4.3524	6.1250	16.26	315.54	.002
37000	254	41	247.90	-.79	4.2067	5.9119	14.10	315.76	.002
37250	253	40	249.44	-.86	4.0669	5.6801	15.26	316.74	.005
37500	252	39	251.13	-.92	3.9322	5.4550	16.60	317.81	.005
37750	252	38	253.40	-.95	3.8035	5.2292	18.69	319.24	.006
38000	251	36	255.67	-.99	3.6791	5.0131	20.28	320.67	.006
38250	252	34	256.65	-.94	3.5604	4.8330	20.39	321.28	.008
38500	252	32	257.59	-.89	3.4455	4.6599	19.95	321.82	.008
38750	253	31	257.98	-.87	3.3347	4.5031	19.62	322.12	.006
39000	254	30	257.91	-.87	3.2276	4.3598	19.92	322.07	.004
39250	255	29	257.86	-.88	3.1239	4.2205	20.03	322.04	.005
39500	259	28	257.98	-.89	3.0236	4.0832	20.11	322.11	.008
39750	263	27	258.09	-.91	2.9266	3.9503	20.18	322.19	.008
40000	267	27	258.27	-.95	2.8329	3.8140	20.68	322.61	.007
40250	270	26	259.64	-1.00	2.7424	3.6798	21.32	323.15	.007
40500	273	25	260.63	-1.04	2.6550	3.5490	21.94	323.76	.005
40750	272	25	262.04	-1.06	2.5712	3.4184	22.50	324.64	.003
41000	272	24	263.45	-1.07	2.4900	3.2927	23.06	325.51	.003
41250	270	23	264.53	-1.05	2.4118	3.1763	23.17	326.18	.006
41500	267	21	265.29	-1.01	2.3365	3.0682	22.86	326.65	.009
41750	262	19	266.06	-.96	2.2635	2.9639	22.56	327.12	.009
42000	252	17	265.83	-.95	2.1929	2.8739	22.54	326.98	.016
42250	238	15	265.31	-.95	2.1245	2.7897	22.61	326.66	.017
42500	222	14	264.80	-.95	2.0583	2.7079	22.75	326.35	.017
42750	210	15	264.53	-1.02	1.9938	2.6258	24.02	326.18	.012
43000	199	16	264.26	-1.08	1.9314	2.5462	25.29	326.01	.012
43250	191	18	264.08	-1.14	1.8710	2.4682	26.44	325.90	.012
43500	188	19	264.59	-1.17	1.8125	2.3865	26.64	326.21	.008
43750	185	21	265.09	-1.21	1.7559	2.3075	26.85	326.52	.008
44000	183	23	265.60	-1.24	1.7010	2.2312	27.06	326.84	.008
44250	183	25	266.30	-1.24	1.6462	2.1562	27.40	327.27	.007
44500	183	26	267.03	-1.23	1.5921	2.0837	27.77	327.72	.007
44750	183	28	267.76	-1.23	1.5476	2.0136	28.13	328.16	.007
45000	183	29	268.07	-1.25	1.4997	1.9490	28.79	328.36	.003
45250	184	29	268.09	-1.29	1.4535	1.8868	29.66	328.36	.001
45500	185	29	268.10	-1.33	1.4086	1.8304	30.54	328.37	.001
45750	185	29	268.11	-1.37	1.3651	1.7738	31.41	328.38	.001
46000	185	29	268.92	-1.41	1.3233	1.7142	31.89	328.88	.002
46250	185	28	269.74	-1.44	1.2827	1.6567	32.37	329.37	.002
46500	185	28	270.55	-1.48	1.2433	1.6010	32.85	329.87	.002
46750	185	27	271.35	-1.51	1.2053	1.5474	33.36	330.36	.002
47000	185	27	272.06	-1.49	1.1687	1.4966	34.10	330.79	.002
47250	184	26	272.78	-1.48	1.1333	1.4474	34.85	331.22	.002
47500	184	26	273.49	-1.46	1.0989	1.3998	35.59	331.66	.002
47750	184	25	274.21	-1.45	1.0656	1.3538	36.33	332.09	.002
48000	182	25	273.31	-1.45	1.0332	1.3170	36.56	331.55	.003
48250	180	25	272.31	-1.46	1.0018	1.2817	36.75	330.94	.003
48500	179	24	271.31	-1.47	.9714	1.2473	36.94	330.33	.003
48750	177	24	270.32	-1.48	.9419	1.2139	37.13	329.73	.003
49000	174	24	269.69	-1.54	.9131	1.1795	37.86	329.15	.004

49250	171	24	269.41	-1.65	.8851	1.1445	39.07	329.18	.005
49500	169	25	269.13	-1.77	.8579	1.1105	40.27	329.00	.005
49750	166	25	268.85	-1.88	.8316	1.0775	41.48	328.83	.005
50000	163	26	268.58	-1.99	.8060	1.0455	42.69	328.66	.005
50250	162	26	268.89	-2.05	.7813	1.0123	43.46	328.85	.002
50500	162	26	269.44	-2.08	.7574	.9793	44.05	329.19	.001
50750	161	26	270.00	-2.12	.7343	.9474	44.65	329.53	.001
51000	160	26	270.55	-2.15	.7118	.9166	45.25	329.87	.001
51250	160	26	271.11	-2.19	.6900	.8867	45.84	330.21	.001
51500	160	26	271.44	-2.21	.6689	.8585	46.39	330.41	.000
51750	161	26	271.32	-2.23	.6486	.8326	46.85	330.32	.002
52000	162	26	271.30	-2.24	.6288	.8075	47.32	330.33	.002
52250	163	26	271.23	-2.25	.6097	.7831	47.78	330.28	.002
52500	164	26	271.16	-2.27	.5911	.7595	48.24	330.24	.002
52750	166	26	271.09	-2.28	.5731	.7366	48.70	330.20	.002
53000	167	26	270.95	-2.33	.5557	.7145	49.64	330.11	.002
53250	167	26	270.76	-2.41	.5387	.6931	50.83	330.00	.002
53500	168	26	270.58	-2.48	.5223	.6725	52.03	329.89	.002
53750	169	26	270.40	-2.56	.5063	.6524	53.22	329.78	.002
54000	170	26	270.21	-2.63	.4909	.6329	54.41	329.66	.002
54250	170	27	270.03	-2.71	.4759	.6140	55.61	329.55	.002
54500	171	26	269.77	-2.77	.4614	.5958	56.62	329.39	.003
54750	174	25	269.35	-2.90	.4472	.5784	57.26	329.14	.007
55000	177	24	268.94	-2.84	.4335	.5615	57.90	328.89	.007
55250	180	22	268.52	-2.87	.4201	.5451	58.54	328.63	.007
55500	183	21	268.11	-2.90	.4072	.5292	59.18	328.38	.007
55750	187	20	267.69	-2.94	.3947	.5137	59.82	328.12	.007
56000	191	19	267.28	-2.97	.3826	.4987	60.46	327.87	.007
56250	196	18	266.65	-3.03	.3708	.4844	61.22	327.48	.007
56500	201	17	265.50	-3.16	.3591	.4712	62.29	326.77	.008
56750	207	16	264.35	-3.28	.3478	.4584	63.35	326.07	.008
57000	214	15	263.20	-3.41	.3369	.4460	64.42	325.36	.008
57250	221	14	262.05	-3.53	.3264	.4339	65.49	324.65	.008
57500	229	14	260.90	-3.66	.3161	.4221	66.55	323.93	.008
57750	237	14	259.75	-3.78	.3062	.4107	67.62	323.22	.008
58000	245	14	258.60	-3.91	.2966	.3995	68.68	322.50	.008
58129	249	14	258.01	-3.97	.2917	.3939	69.24	322.13	.008

MAXIMUM ALTITUDE 61559

TEST NUMBER 0000
CAPE CANAVERAL AFS, FLORIDA
1515Z 18 JAN 1984

SUPER LUNI PWN 10D

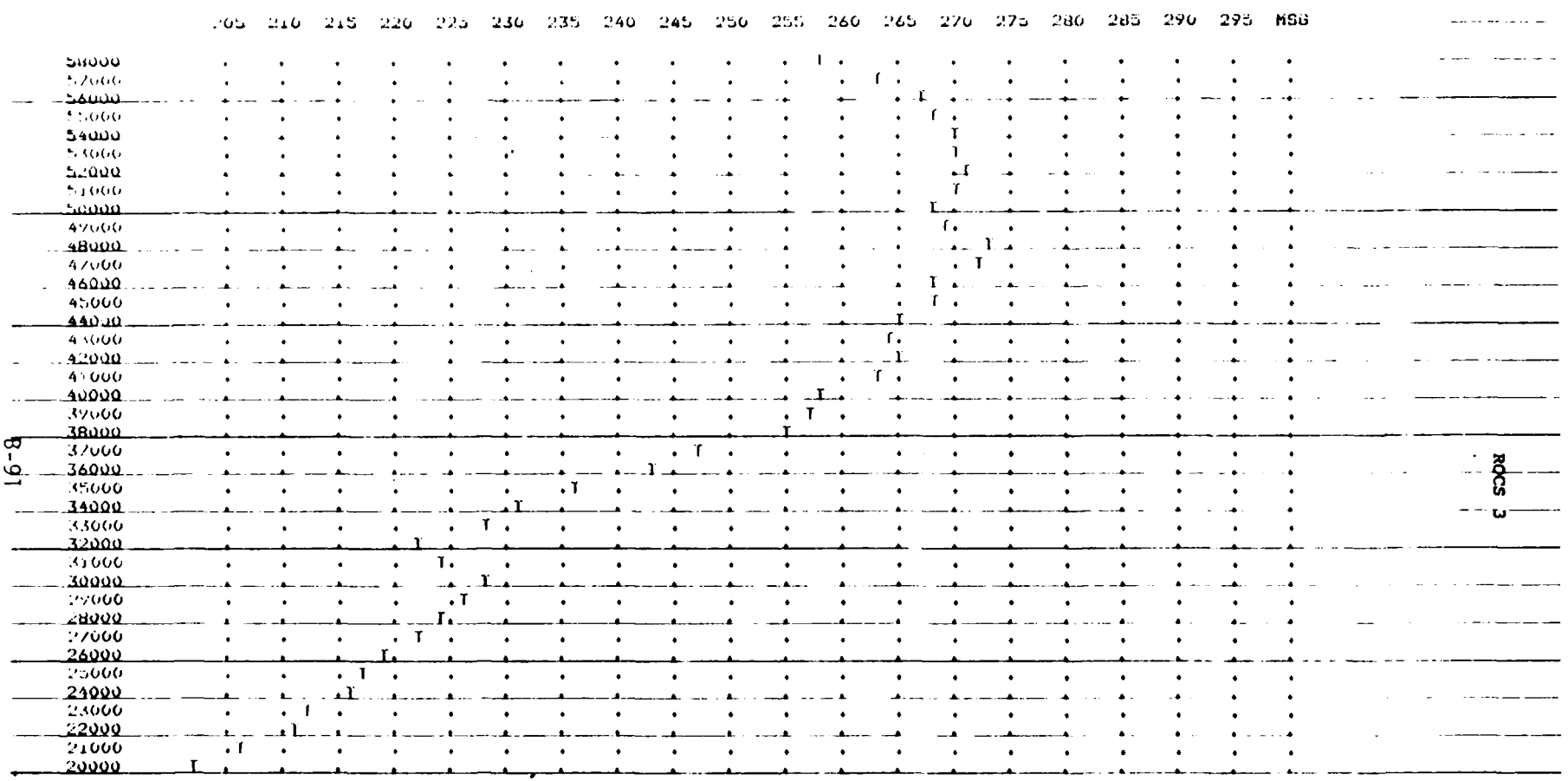
ALT GEOMFT	DIR DEG	SPD KTS	TEMP K	TEMP CORR	PRESS MBS	DENSITY G/M3	RF KTS	VB KTS	SHR /SEC
66000	235	27	203.03	-.46	54.1967	92.9960	14.42	555.10	.999
67000	239	24	205.12	-.46	51.5245	87.4683	20.61	558.02	.012
68000	236	19	206.73	-.44	49.0046	82.5830	11.28	560.14	.007
69000	235	28	206.68	-.44	46.6190	78.5813	16.91	560.07	.015
70000	238	37	208.44	-.45	44.3550	74.1346	8.36	562.45	.016
71000	242	36	210.03	-.46	42.2184	70.0286	12.85	564.59	.009
72000	248	33	211.29	-.46	40.2037	66.2887	25.67	566.28	.005
73000	253	32	211.40	-.46	38.2878	63.0961	19.69	566.43	.005
74000	263	35	212.16	-.46	36.4660	59.8804	13.41	567.44	.011
75000	273	33	212.96	-.45	34.7381	56.8271	10.74	568.52	.010
76000	266	31	213.52	-.48	33.0963	53.9993	20.60	569.27	.007
77000	254	35	214.92	-.47	31.5406	51.1254	16.81	571.13	.013
78000	253	39	215.52	-.47	30.0649	48.5998	16.28	571.92	.007
79000	261	40	216.70	-.48	28.6637	46.0815	18.60	573.49	.010
80000	265	41	217.23	-.48	27.3334	43.8364	19.73	574.18	.004
81000	259	42	217.18	-.48	26.0661	41.8120	18.72	574.13	.007
82000	253	45	217.90	-.50	24.8587	39.7446	12.79	575.07	.010
83000	253	47	218.91	-.52	23.7130	37.7380	26.08	576.40	.004
84000	255	49	219.70	-.52	22.6240	35.8754	29.56	577.44	.004
85000	257	50	219.69	-.49	21.5875	34.2022	13.55	577.69	.003
86000	254	51	220.98	-.53	20.6005	32.4768	23.21	579.13	.004
87000	252	51	221.92	-.53	19.6643	30.8699	26.08	580.35	.003
88000	251	52	222.10	-.51	18.7724	29.4464	23.19	580.58	.002
89000	251	54	221.89	-.52	17.9210	28.1366	20.04	580.32	.004
90000	252	58	221.62	-.53	17.1074	26.8927	22.17	579.96	.006
91000	253	61	222.87	-.56	16.3324	25.5302	25.73	581.59	.005
92000	252	62	224.87	-.57	15.5982	24.1654	28.28	584.20	.003
93000	254	62	225.88	-.56	14.9014	22.9826	22.90	585.51	.003
94000	255	62	226.41	-.60	14.2379	21.9077	41.59	586.20	.002
95000	258	63	226.38	-.54	13.6048	20.9369	19.31	586.15	.005
96000	263	64	226.45	-.58	12.9999	19.9994	28.76	586.25	.010
97000	262	64	227.16	-.60	12.4230	19.0525	32.33	587.16	.002
98000	259	63	228.38	-.61	11.8739	18.1130	35.34	588.74	.006
99000	253	63	228.56	-.58	11.3508	17.3017	28.36	588.97	.010
100000	248	64	227.20	-.57	10.8495	16.6360	31.37	587.22	.010
101000	245	67	225.28	-.56	10.3670	16.0317	27.82	584.73	.007
102000	245	67	223.97	-.63	9.9027	15.4037	39.28	583.02	.001
103000	248	66	223.19	-.64	9.4572	14.7616	38.90	582.02	.005
104000	249	66	222.61	-.62	9.0306	14.1325	30.28	581.26	.002
105000	247	66	222.31	-.65	8.6225	13.5125	24.99	580.86	.003
106000	245	67	224.00	-.74	8.2340	12.8059	37.54	583.07	.005
107000	242	67	226.27	-.76	7.8668	12.1120	47.11	586.02	.006
108000	239	68	228.00	-.74	7.5181	11.4873	45.07	588.25	.005
109000	237	69	228.83	-.70	7.1870	10.9416	32.17	589.33	.005
110000	236	71	229.67	-.72	6.8717	10.4236	40.83	590.40	.004
111000	236	69	230.35	-.72	6.5713	9.9385	37.72	591.27	.003
112000	238	70	231.91	-.78	6.2856	9.4425	44.38	593.27	.004
113000	239	71	233.55	-.79	6.0141	8.9709	45.24	595.37	.003
114000	240	72	235.17	-.79	5.7559	8.5266	43.83	597.43	.003
115000	243	74	236.78	-.83	5.5104	8.1076	49.68	599.47	.008
116000	246	76	238.62	-.85	5.2776	7.7052	50.88	601.79	.008
117000	249	78	240.27	-.86	5.0560	7.3158	50.49	604.50	.008
118000	253	79	243.46	-.87	4.8457	6.9340	48.43	607.87	.008
119000	254	80	245.63	-.86	4.6467	6.5905	54.47	611.57	.004

120000	255	81	247.33	-.85	4.4566	6.2774	58.39	612.68	.002
121000	254	80	247.72	-.81	4.2755	6.0127	49.55	613.17	.002
122000	253	79	249.04	-.84	4.1024	5.7388	49.08	614.79	.004
123000	252	76	251.04	-.92	3.9372	5.4638	54.20	617.25	.005
124000	252	72	253.81	-.96	3.7807	5.1893	62.55	620.65	.006
125000	251	68	256.08	.97	3.6311	4.9399	67.75	623.42	.007
126000	252	64	257.23	-.91	3.4888	4.7250	66.01	624.82	.008
127000	253	60	257.99	-.87	3.3523	4.5267	64.95	625.75	.007
128000	254	58	257.90	-.87	3.2215	4.3516	65.39	625.64	.004
129000	257	56	257.89	-.88	3.0958	4.1820	65.78	625.63	.006
130000	261	54	258.03	-.90	2.9750	4.0167	66.09	625.80	.008
131000	266	52	258.52	-.94	2.8592	3.8530	67.26	626.39	.008
132000	270	51	259.58	1.00	2.7482	3.6884	69.82	627.67	.007
133000	273	49	260.85	-1.04	2.6419	3.5265	72.38	629.20	.005
134000	272	48	262.57	-1.06	2.5406	3.3709	74.50	631.27	.003
135000	272	46	264.32	-1.07	2.4432	3.2214	76.42	633.35	.003
136000	267	41	265.15	-1.01	2.3505	3.0883	75.19	634.37	.009
137000	262	37	266.08	.96	2.2613	2.9607	73.97	635.48	.009
138000	249	32	265.70	-.95	2.1756	2.8526	74.01	635.03	.016
139000	230	28	265.06	-.95	2.0932	2.7511	74.30	634.26	.017
140000	213	29	264.62	-1.00	2.0137	2.6511	77.51	633.73	.014
141000	200	31	264.29	-1.07	1.9371	2.5535	82.58	633.33	.012
142000	190	35	264.15	-1.14	1.8635	2.4577	86.82	633.16	.011
143000	187	39	264.76	-1.19	1.7927	2.3589	87.65	633.90	.008
144000	184	43	265.38	-1.23	1.7246	2.2641	88.48	634.64	.008
145000	183	47	266.15	-1.24	1.6595	2.1722	89.65	635.56	.007
146000	183	51	267.03	-1.23	1.5969	2.0834	91.10	636.62	.007
147000	183	56	267.92	-1.23	1.5368	1.9983	92.55	637.67	.007
148000	184	57	268.08	-1.27	1.4791	1.9222	95.72	637.86	.002
149000	184	57	268.09	-1.32	1.4236	1.8500	99.22	637.88	.001
150000	185	57	268.11	-1.36	1.3703	1.7805	102.72	637.90	.001
151000	185	56	269.01	-1.41	1.3192	1.7084	104.79	638.96	.002
152000	185	55	270.00	-1.45	1.2700	1.6387	106.70	640.14	.002
153000	185	54	270.98	-1.50	1.2227	1.5719	108.62	641.31	.002
154000	185	52	271.89	-1.50	1.1775	1.5087	111.29	642.38	.002
155000	184	51	272.76	-1.48	1.1341	1.4485	114.27	643.41	.002
156000	184	50	273.63	-1.46	1.0923	1.3907	117.24	644.43	.002
157000	183	49	273.90	-1.45	1.0521	1.3381	119.57	644.74	.002
158000	181	48	272.68	-1.46	1.0132	1.2945	120.34	643.31	.003
159000	179	47	271.46	-1.47	.9758	1.2523	121.11	641.87	.003
160000	177	46	270.24	-1.48	.9398	1.2115	121.87	640.43	.003
161000	173	47	269.61	-1.57	.9048	1.1692	125.36	639.68	.004
162000	170	48	269.27	-1.71	.8711	1.1270	130.19	639.28	.005
163000	167	49	268.93	-1.85	.8386	1.0863	135.02	638.87	.005
164000	163	50	268.59	-1.99	.8073	1.0471	139.86	638.47	.005
165000	162	51	268.98	-2.06	.7773	1.0067	142.93	638.93	.002
166000	161	51	269.66	-2.10	.7484	.9668	145.31	639.74	.001
167000	160	51	270.34	-2.14	.7205	.9286	147.69	640.54	.001
168000	160	51	271.01	-2.18	.6938	.8918	150.07	641.34	.001
169000	160	51	271.44	-2.21	.6680	.8574	152.27	641.85	.000
170000	161	50	271.36	-2.23	.6433	.8259	154.12	641.75	.002
171000	163	50	271.27	-2.25	.6195	.7956	155.97	641.64	.002
172000	164	50	271.18	-2.26	.5966	.7664	157.82	641.54	.002
173000	166	50	271.10	-2.28	.5745	.7383	159.67	641.44	.002
174000	167	50	270.92	-2.34	.5532	.7114	163.41	641.23	.002
175000	168	50	270.70	-2.44	.5327	.6856	168.18	640.97	.002
176000	169	51	270.47	-2.53	.5130	.6607	172.96	640.70	.002
177000	169	51	270.25	-2.62	.4940	.6368	177.74	640.44	.002
178000	170	52	270.03	-2.71	.4757	.6137	182.51	640.17	.002
179000	172	51	269.67	-2.78	.4580	.5916	186.26	639.75	.003
180000	175	47	269.17	-2.82	.4409	.5706	188.82	639.15	.007
181000	179	44	268.66	-2.86	.4244	.5503	191.37	638.55	.007
182000	183	41	268.15	-2.90	.4086	.5308	193.93	637.95	.007

183000	182	48	267.64	-2.94	.3933	.5120	196.49	637.34	.007
184000	193	36	267.14	-2.98	.3786	.4938	199.05	636.74	.007
185000	199	33	266.01	-3.10	.3643	.4771	202.78	635.40	.008
186000	205	31	264.61	-3.25	.3504	.4613	207.05	633.72	.008
187000	213	29	263.21	-3.41	.3370	.4461	211.32	632.04	.008
188000	222	27	261.81	-3.56	.3242	.4314	215.58	630.36	.008
189000	232	27	260.41	-3.71	.3118	.4171	219.85	628.67	.008
190000	242	27	259.01	-3.86	.2999	.4034	224.11	626.97	.008
190714	249	27	258.01	-3.97	.2917	.3939	227.16	625.76	.008

MAXIMUM ALTITUDE 201965

CAPE CANAVERAL AFS, FLORIDA
0512Z 18 JAN 1984
SUPER LOW ALT DATASONDE FWN-100
TEST NUMBER 000000
ASCENT NBR. 4029



RDCS 3

TEST NUMBER 0000
CAPE CANAVERAL AFS, FLORIDA
1515Z 18 JAN 1984

SUPER LOKI FWN-100

ALT GEOMM	DIR DEG	SPD MPS	TEMP K	TEMP CORR	PRESS MBS	DENSITY G/M3	RF MPS	VS MPS	SHR /SEC
20000	224	13	202.24	-.46	999.9999	999.9999	7.24	285.20	.999
21000	236	14	206.58	-.44	46.6561	79.0216	5.14	288.25	.003
22000	249	17	211.30	-.45	39.8551	65.7097	4.69	291.52	.005
23000	271	16	212.92	-.47	33.9738	55.5876	5.61	292.64	.006
24000	260	21	216.46	-.48	29.0207	46.7066	5.90	295.06	.006
25000	253	23	217.93	-.50	24.8342	39.7002	3.79	296.06	.003
26000	256	26	219.90	-.51	21.2844	33.7199	5.32	297.39	.003
27000	251	27	222.04	-.51	18.2718	28.6684	5.92	298.84	.003
28000	252	32	224.66	-.57	15.6962	24.3400	8.32	300.59	.005
29000	259	32	226.37	-.53	13.5159	20.8008	5.49	301.74	.003
30000	256	32	228.74	-.60	11.6488	17.7414	9.77	303.31	.001
31000	245	35	224.24	-.59	10.0374	15.5944	9.86	300.31	.007
32000	247	34	222.31	-.65	8.6278	13.5207	7.66	299.02	.001
33000	239	35	228.23	-.73	7.4280	11.3387	12.41	302.97	.005
34000	237	36	231.15	-.75	6.4130	9.6655	12.42	304.90	.001
35000	243	38	236.51	-.83	5.5516	8.1776	14.84	308.42	.004
36000	253	41	243.25	-.87	4.8231	6.8933	14.69	313.11	.008
37000	254	41	247.90	-.79	4.2067	5.9119	14.10	315.76	.001
38000	251	46	255.67	-.99	3.6791	5.0131	20.78	320.67	.006
39000	254	30	257.91	-.87	3.2276	4.3598	19.92	322.07	.006
40000	262	27	258.77	-.95	2.8329	3.8140	20.68	322.61	.007
41000	272	24	263.45	-1.07	2.4900	3.2927	23.06	325.51	.004
42000	252	17	265.83	-.95	2.1929	2.8739	22.54	326.98	.010
43000	199	16	264.26	-1.08	1.9314	2.5462	25.29	326.01	.015
44000	183	23	265.60	-1.24	1.7010	2.2312	27.06	326.84	.009
45000	183	29	268.07	-1.25	1.4997	1.9490	28.79	328.36	.006
46000	185	29	268.92	-1.41	1.3233	1.7142	31.89	328.88	.001
47000	185	27	272.06	-1.49	1.1687	1.4966	34.10	330.79	.002
48000	182	25	273.31	-1.45	1.0332	1.3170	36.56	331.55	.002
49000	174	24	269.69	-1.54	.9131	1.1795	37.86	329.35	.003
50000	163	26	268.58	-1.99	.8060	1.0455	42.69	328.66	.005
51000	160	26	270.55	-2.15	.7118	.9166	45.25	329.87	.001
52000	162	26	271.30	-2.24	.6288	.8075	47.32	330.33	.001
53000	167	26	270.95	-2.33	.5557	.7145	49.64	330.11	.002
54000	170	26	270.21	-2.63	.4909	.6329	54.41	329.66	.002
55000	177	24	268.94	-2.84	.4335	.5615	57.90	328.89	.004
56000	191	19	267.28	-2.97	.3826	.4987	60.46	327.87	.007
57000	214	15	263.20	-3.41	.3369	.4460	64.42	325.36	.008
58000	245	14	258.60	-3.91	.2966	.3995	68.68	322.50	.008
58129	249	14	258.01	-3.97	.2917	.3939	69.24	322.13	.008

MAXIMUM ALTITUDE 61559

TEST NUMBER 0000
CAPE CANAVERAL AFS, FLORIDA
1515Z 18 JAN 1984

ALT (GEOMA)	DIR DEG	SPD MPS	TEMP K	TEMP CORR	PRESS MBS	DENSITY G/M3	MF MPS	VS MPS	SHR /SEC
20000	224	13	202.24	-.46	999.9999	999.9999	7.24	285.20	.999
20250	230	14	204.33	-.45	53.0085	90.3771	5.23	286.67	.008
20500	240	11	205.53	-.45	50.8632	86.2151	5.67	287.51	.015
20750	236	10	206.82	-.44	48.8160	82.2270	3.88	288.42	.006
21000	236	14	206.58	-.44	46.8581	79.0216	5.14	288.25	.016
21250	234	18	207.78	-.45	44.9806	75.4187	2.76	289.08	.017
21500	244	19	209.02	-.47	43.1908	71.9885	6.64	289.94	.013
21750	247	18	211.25	-.45	41.4843	68.4129	3.96	291.49	.007
22000	249	17	211.30	-.45	39.8551	65.7097	4.69	291.52	.005
22250	253	17	211.40	-.46	38.2906	63.1007	6.00	291.59	.004
22500	261	18	211.98	-.45	36.7891	60.4611	2.97	291.99	.010
22750	272	18	212.68	-.46	35.3516	57.9083	5.27	292.47	.013
23000	271	16	212.92	-.47	33.9738	55.5876	5.61	292.64	.008
23250	263	16	213.94	-.48	32.6534	53.1739	5.64	293.33	.009
23500	253	18	215.04	-.47	31.3901	50.8551	5.27	294.09	.013
23750	253	20	215.50	-.47	30.1807	48.7912	5.42	294.40	.007
24000	260	21	216.46	-.48	29.0207	46.7066	5.90	295.06	.010
24250	264	21	217.10	-.48	27.9103	44.7882	5.28	295.49	.007
24500	263	21	217.25	-.49	26.8442	43.0470	7.36	295.60	.002
24750	258	22	217.23	-.48	25.8191	41.4074	5.77	295.58	.008
25000	253	23	217.93	-.50	24.8342	39.7002	3.79	296.06	.010
25250	252	24	218.80	-.52	23.8911	38.0410	7.62	296.64	.004
25500	254	25	219.41	-.52	22.9868	36.4983	8.59	297.06	.005
25750	256	25	219.91	-.51	22.1187	35.0402	7.50	297.40	.004
26000	256	26	219.90	-.51	21.2844	33.7199	5.32	297.39	.002
26250	254	26	221.15	-.53	20.4840	32.2684	6.80	298.24	.004
26500	252	26	221.91	-.53	19.7173	30.9546	7.59	298.75	.003
26750	251	27	222.06	-.53	18.9807	29.7784	8.52	298.85	.002
27000	251	27	222.04	-.51	18.2718	28.6684	5.92	298.84	.003
27250	253	29	221.71	-.52	17.5890	27.6380	6.21	298.61	.006
27500	253	30	221.78	-.54	16.9313	26.5959	7.07	298.66	.006
27750	253	31	222.97	-.56	16.3000	25.4677	7.83	299.46	.005
28000	252	32	224.66	-.57	15.6962	24.3400	8.32	300.59	.003
28250	253	32	225.66	-.57	15.1182	23.3394	8.23	301.27	.002
28500	255	32	226.16	-.57	14.5633	22.4331	8.96	301.60	.003
28750	256	32	226.47	-.59	14.0297	21.5823	12.15	301.80	.003
29000	259	32	226.37	-.53	13.5159	20.8008	5.49	301.74	.007
29250	263	33	226.44	-.58	13.0210	20.0326	8.76	301.78	.010
29500	262	33	226.85	-.60	12.5448	19.2657	9.25	302.05	.001
29750	261	33	228.03	-.62	12.0873	18.4670	11.55	302.84	.004
30000	256	32	228.74	-.60	11.6488	17.7414	9.77	303.31	.009
30250	251	32	228.28	-.57	11.2261	17.1325	8.23	303.00	.011
30500	248	33	227.10	-.57	10.8174	16.5943	9.79	302.22	.009
30750	245	34	225.53	-.56	10.4213	16.0978	8.99	301.18	.007
31000	245	35	224.24	-.59	10.0374	15.5944	9.86	300.31	.002
31250	246	34	223.52	-.66	9.6661	15.0659	14.15	299.83	.005
31500	249	34	222.96	-.62	9.3074	14.5432	10.18	299.45	.006
31750	248	34	222.54	-.62	8.9614	14.0269	9.28	299.17	.002
32000	247	34	222.31	-.65	8.6278	13.5207	7.66	299.02	.003
32250	245	34	223.54	-.72	8.3075	12.9470	10.19	299.84	.004
32500	243	34	225.44	-.76	8.0014	12.3648	13.68	301.12	.006

32750	241	35	227.27	-.76	7.7084	11.8159	15.17	302.34	.006
33000	239	35	228.23	-.73	7.4280	11.3387	12.41	302.97	.005
33250	237	36	228.91	-.70	7.1588	10.8951	10.06	303.42	.004
33500	236	36	229.60	-.72	6.9001	10.4699	12.38	303.88	.004
33750	236	36	230.16	-.72	6.6517	10.0681	11.75	304.25	.003
34000	237	36	231.15	-.75	6.4130	9.6655	12.42	304.90	.002
34250	239	36	232.53	-.80	6.1836	9.2644	14.43	305.81	.004
34500	239	36	233.86	-.79	5.9644	8.8851	13.57	306.69	.002
34750	240	37	235.19	-.79	5.7536	8.5227	13.38	307.56	.004
35000	243	38	236.51	-.83	5.5516	8.1776	14.84	308.42	.008
35250	245	39	237.96	-.85	5.3580	7.8442	15.46	309.37	.008
35500	248	40	239.50	-.86	5.1719	7.5231	15.57	310.36	.008
35750	250	40	241.55	-.86	4.9942	7.2030	15.21	311.69	.008
36000	253	41	243.75	-.87	4.8231	6.8933	14.69	313.11	.008
36250	254	41	245.48	-.86	4.6603	6.6137	16.45	314.22	.004
36500	255	42	247.19	-.86	4.5031	6.3466	18.32	315.30	.004
36750	255	41	247.56	-.82	4.3524	6.1250	16.26	315.54	.002
37000	254	41	247.90	-.79	4.2067	5.9119	14.10	315.76	.002
37250	253	40	249.44	-.86	4.0669	5.6801	15.26	316.74	.005
37500	252	39	251.13	-.92	3.9322	5.4550	16.60	317.81	.005
37750	252	38	253.40	-.95	3.8035	5.2292	18.69	319.24	.006
38000	251	36	255.67	-.99	3.6791	5.0131	20.78	320.67	.006
38250	252	34	256.65	-.94	3.5604	4.8330	20.39	321.28	.008
38500	252	32	257.59	-.89	3.4455	4.6599	19.95	321.87	.008
38750	253	31	257.98	-.87	3.3347	4.5031	19.82	322.12	.006
39000	254	30	257.91	-.87	3.2276	4.3598	19.92	322.07	.004
39250	255	29	257.86	-.88	3.1239	4.2205	20.03	322.04	.005
39500	259	28	257.98	-.89	3.0236	4.0832	20.11	322.11	.008
39750	263	27	258.09	-.91	2.9266	3.9503	20.18	322.19	.008
40000	267	27	258.77	-.95	2.8329	3.8140	20.68	322.61	.007
40250	270	26	259.64	-1.00	2.7424	3.6798	21.32	323.15	.007
40500	273	25	260.63	-1.04	2.6550	3.5490	21.94	323.76	.005
40750	272	25	262.04	-1.06	2.5712	3.4184	22.50	324.64	.003
41000	272	24	263.45	-1.07	2.4900	3.2927	23.06	325.51	.003
41250	270	23	264.53	-1.05	2.4118	3.1763	23.17	326.18	.006
41500	267	21	265.29	-1.01	2.3365	3.0682	22.86	326.65	.009
41750	262	19	266.06	-.96	2.2635	2.9639	22.56	327.12	.009
42000	252	17	265.83	-.95	2.1929	2.8739	22.54	326.98	.016
42250	238	15	265.31	-.95	2.1245	2.7897	22.61	326.66	.017
42500	222	14	264.80	-.95	2.0583	2.7079	22.75	326.35	.017
42750	210	15	264.53	-1.02	1.9938	2.6258	24.02	326.18	.012
43000	199	16	264.26	-1.08	1.9314	2.5462	25.29	326.01	.012
43250	191	18	264.08	-1.14	1.8710	2.4682	26.44	325.90	.012
43500	188	19	264.59	-1.17	1.8125	2.3865	26.64	326.21	.008
43750	185	21	265.09	-1.21	1.7559	2.3075	26.85	326.52	.008
44000	183	23	265.60	-1.24	1.7010	2.2312	27.06	326.84	.008
44250	183	25	266.30	-1.24	1.6462	2.1562	27.40	327.27	.007
44500	183	26	267.03	-1.23	1.5971	2.0837	27.77	327.72	.007
44750	183	28	267.76	-1.23	1.5476	2.0136	28.13	328.16	.007
45000	183	29	268.07	-1.25	1.4997	1.9490	28.79	328.36	.003
45250	184	29	268.09	-1.29	1.4535	1.8888	29.66	328.36	.001
45500	185	29	268.10	-1.33	1.4086	1.8304	30.54	328.37	.001
45750	185	29	268.11	-1.37	1.3651	1.7738	31.41	328.38	.001
46000	185	29	268.92	-1.41	1.3233	1.7142	31.89	328.88	.002
46250	185	28	269.74	-1.44	1.2827	1.6567	32.37	329.37	.002
46500	185	28	270.55	-1.48	1.2433	1.6010	32.85	329.87	.002

46750	185	27	271.35	-1.51	1.2053	1.5474	33.36	330.36	.002
47000	185	27	272.06	-1.49	1.1687	1.4966	34.10	330.79	.002
47250	184	26	272.78	-1.48	1.1333	1.4474	34.85	331.22	.002
47500	184	26	274.49	-1.46	1.0989	1.3998	35.59	331.66	.002
47750	184	25	274.21	-1.45	1.0656	1.3538	36.33	332.09	.002
48000	182	25	273.41	-1.45	1.0332	1.3170	36.56	331.55	.003
48250	180	25	272.31	-1.46	1.0018	1.2817	36.75	330.94	.003
48500	179	24	271.31	-1.47	.9714	1.2473	36.94	330.33	.003
48750	177	24	270.32	-1.48	.9419	1.2139	37.13	329.73	.003
49000	174	24	269.69	-1.54	.9131	1.1795	37.86	329.35	.004
49250	171	24	269.41	-1.65	.8851	1.1445	39.07	329.18	.005
49500	169	25	269.13	-1.77	.8579	1.1105	40.27	329.00	.005
49750	166	25	268.85	-1.88	.8316	1.0775	41.48	328.83	.005
50000	163	26	268.58	-1.99	.8060	1.0455	42.69	328.66	.005
50250	162	26	268.89	-2.05	.7813	1.0123	43.46	328.85	.002
50500	162	26	269.44	-2.08	.7524	.9793	44.06	329.19	.001
50750	161	26	270.00	-2.12	.7343	.9474	44.65	329.53	.001
51000	160	26	270.55	-2.15	.7118	.9166	45.25	329.87	.001
51250	160	26	271.11	-2.19	.6900	.8867	45.84	330.21	.001
51500	160	26	271.44	-2.21	.6687	.8585	46.39	330.41	.000
51750	161	26	271.37	-2.23	.6486	.8326	46.85	330.37	.002
52000	162	26	271.30	-2.24	.6288	.8075	47.32	330.33	.002
52250	163	26	271.23	-2.25	.6097	.7831	47.78	330.28	.002
52500	164	26	271.16	-2.27	.5911	.7595	48.24	330.24	.002
52750	166	26	271.09	-2.28	.5731	.7366	48.70	330.20	.002
53000	167	26	270.95	-2.33	.5557	.7145	49.64	330.11	.002
53250	167	26	270.76	-2.41	.5387	.6931	50.83	330.00	.002
53500	168	26	270.58	-2.48	.5223	.6725	52.03	329.89	.002
53750	169	26	270.40	-2.56	.5063	.6524	53.22	329.78	.002
54000	170	26	270.21	-2.63	.4909	.6329	54.41	329.66	.002
54250	170	27	270.03	-2.71	.4759	.6140	55.61	329.55	.002
54500	171	26	269.77	-2.77	.4614	.5958	56.62	329.39	.003
54750	174	25	269.35	-2.80	.4472	.5784	57.26	329.14	.007
55000	177	24	268.94	-2.84	.4335	.5615	57.90	328.89	.007
55250	180	22	268.52	-2.87	.4201	.5451	58.54	328.63	.007
55500	183	21	268.11	-2.90	.4072	.5292	59.18	328.38	.007
55750	187	20	267.69	-2.94	.3947	.5137	59.82	328.12	.007
56000	191	19	267.28	-2.97	.3826	.4987	60.46	327.87	.007
56250	196	18	266.65	-3.03	.3708	.4844	61.22	327.48	.007
56500	201	17	265.50	-3.16	.3591	.4712	62.29	326.77	.008
56750	207	16	264.35	-3.28	.3478	.4584	63.35	326.07	.008
57000	214	15	263.20	-3.41	.3369	.4460	64.42	325.36	.008
57250	221	14	262.05	-3.53	.3264	.4339	65.49	324.65	.008
57500	229	14	260.90	-3.66	.3161	.4221	66.55	323.93	.008
57750	237	14	259.75	-3.78	.3062	.4107	67.62	323.22	.008
58000	245	14	258.60	-3.91	.2966	.3995	68.68	322.50	.008
58129	249	14	258.01	-3.97	.2917	.3939	69.24	322.13	.008

MAXIMUM ALTITUDE 61559

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TEST NUMBER 0000

CAPE CANAVERAL AFS, FLORIDA

1515Z 18 JAN 1984

SUPER LOKI FWN-10D

ALT (EUMET)	DIR DEG	SPD KTS	TEMP K	TEMP CDEG	PRESS MBS	DENSITY G/M3	RF KTS	VS KTS	SHR /SEC
66000	225	27	203.03	-.46	54.1967	92.9960	14.42	555.10	.999
67000	239	23	205.17	-.46	51.5245	87.4883	20.61	558.02	.012
68000	236	19	206.73	-.44	49.0046	82.5830	11.28	560.14	.007
69000	235	28	206.68	-.44	46.6190	78.5813	16.91	560.07	.015
70000	238	37	208.44	-.45	44.3550	74.1346	8.36	562.45	.016
71000	247	36	210.03	-.46	42.2184	70.0286	12.85	564.59	.009
72000	248	33	211.29	-.46	40.2032	66.2887	25.67	566.28	.005
73000	253	32	211.40	-.46	38.2878	63.0961	19.69	566.43	.005
74000	263	35	212.16	-.46	36.4660	59.6804	13.41	567.44	.011
75000	273	33	212.96	-.45	34.7381	56.8271	10.74	568.52	.010
76000	266	31	213.52	-.48	33.0963	53.9993	20.60	569.27	.007
77000	254	35	214.92	-.47	31.5406	51.1254	16.81	571.13	.013
78000	253	39	215.52	-.47	30.0649	48.5998	16.28	571.92	.007
79000	261	40	216.70	-.48	28.6637	46.0815	18.60	573.49	.010
80000	265	41	217.23	-.48	27.3334	43.8364	19.73	574.18	.004
81000	259	42	217.18	-.48	26.0661	41.8120	18.72	574.13	.007
82000	253	45	217.90	-.50	24.8587	39.7446	12.79	575.07	.010
83000	253	47	218.91	-.52	23.7130	37.7380	26.08	576.40	.004
84000	255	49	219.20	-.52	22.6240	35.8754	29.56	577.44	.004
85000	257	50	219.89	-.49	21.5875	34.2022	13.55	577.69	.003
86000	254	51	220.98	-.53	20.6005	32.4768	23.21	579.13	.004
87000	252	51	221.92	-.53	19.6643	30.8699	26.08	580.35	.003
88000	251	52	222.10	-.51	18.7724	29.4464	23.19	580.58	.002
89000	251	54	221.89	-.52	17.9210	28.1366	20.04	580.32	.004
90000	252	58	221.62	-.53	17.1074	26.8927	22.17	579.96	.006
91000	253	61	222.87	-.56	16.3324	25.5302	25.73	581.59	.005
92000	252	62	224.87	-.57	15.5982	24.1654	28.28	584.20	.003
93000	254	62	225.88	-.56	14.9014	22.9826	22.90	585.51	.003
94000	255	62	226.41	-.60	14.2379	21.9077	41.59	586.20	.002
95000	258	63	226.38	-.54	13.6048	20.9369	19.31	586.15	.005
96000	263	64	226.45	-.58	12.9999	19.9994	28.76	586.25	.010
97000	262	64	227.16	-.60	12.4230	19.0525	32.33	587.16	.002
98000	259	63	228.38	-.61	11.8739	18.1130	35.34	588.74	.006
99000	253	63	228.56	-.58	11.3508	17.3017	28.36	588.97	.010
100000	248	64	227.20	-.57	10.8495	16.6360	31.37	587.22	.010
101000	245	67	225.28	-.56	10.3670	16.0317	27.82	584.73	.007
102000	245	67	223.97	-.63	9.9027	15.4037	39.28	583.02	.001
103000	248	66	223.19	-.64	9.4572	14.7616	38.90	582.07	.005
104000	249	66	222.61	-.62	9.0306	14.1325	30.28	581.26	.002
105000	247	66	222.31	-.65	8.6225	13.5123	24.99	580.86	.003
106000	245	67	224.00	-.74	8.2340	12.8059	37.54	583.07	.005
107000	242	67	226.27	-.76	7.8668	12.1120	47.11	586.02	.006
108000	239	68	228.00	-.74	7.5181	11.4873	45.07	588.25	.005
109000	237	69	228.83	-.70	7.1870	10.9416	32.17	589.33	.005
110000	236	71	229.67	-.72	6.8717	10.4236	40.83	590.40	.004
111000	236	69	230.35	-.72	6.5713	9.9385	37.72	591.27	.003
112000	238	70	231.91	-.78	6.2856	9.4425	44.38	593.27	.004
113000	239	71	233.55	-.79	6.0141	8.9709	45.24	595.37	.003
114000	240	72	235.17	-.79	5.7559	8.5266	43.83	597.43	.003
115000	243	74	236.78	-.83	5.5104	8.1076	49.68	599.47	.008
116000	246	76	238.62	-.85	5.2776	7.7052	50.68	601.79	.008
117000	249	78	240.77	-.86	5.0560	7.3158	50.49	604.50	.008
118000	253	79	243.46	-.87	4.8457	6.9340	48.43	607.87	.008

119000	254	80	245.63	-.86	4.6467	6.5905	54.48	610.57	.004
120000	255	81	247.33	-.85	4.4566	6.2774	58.39	612.68	.002
121000	254	80	247.72	-.81	4.2755	6.0127	49.55	613.17	.002
122000	253	79	249.04	-.84	4.1024	5.7588	49.68	614.79	.004
123000	252	78	251.04	-.92	3.9372	5.4638	54.20	617.25	.005
124000	252	77	253.81	-.96	3.7807	5.1893	62.55	620.65	.006
125000	251	68	256.08	-.97	3.6311	4.9399	67.75	623.42	.007
126000	252	64	257.23	-.91	3.4888	4.7250	66.01	624.82	.008
127000	253	60	257.99	-.87	3.3523	4.5267	64.95	625.75	.007
128000	254	58	257.90	-.82	3.2215	4.3516	65.39	625.64	.004
129000	257	56	257.69	-.88	3.0958	4.1820	65.78	625.63	.006
130000	261	54	258.03	-.90	2.9750	4.0167	66.09	625.80	.008
131000	266	52	258.52	-.94	2.8592	3.8530	67.26	626.39	.008
132000	270	51	259.58	-1.00	2.7482	3.6884	69.82	627.67	.007
133000	273	49	260.85	-1.04	2.6419	3.5265	72.28	629.20	.005
134000	272	48	262.57	-1.06	2.5406	3.3709	74.50	631.27	.003
135000	272	46	264.22	-1.07	2.4432	3.2214	76.42	633.25	.003
136000	267	41	265.15	-1.01	2.3505	3.0883	75.19	634.37	.009
137000	262	37	266.08	-.96	2.2613	2.9607	73.97	635.48	.009
138000	249	32	265.70	-.93	2.1756	2.8526	74.01	635.03	.016
139000	230	28	265.06	-.95	2.0932	2.7511	74.30	634.26	.017
140000	213	29	264.62	-1.00	2.0137	2.6511	77.51	633.73	.014
141000	200	31	264.29	-1.07	1.9371	2.5535	82.58	633.33	.012
142000	190	35	264.15	-1.14	1.8635	2.4577	86.82	633.16	.011
143000	187	39	264.76	-1.19	1.7927	2.3589	87.65	633.90	.008
144000	184	43	265.38	-1.23	1.7246	2.2641	88.48	634.64	.008
145000	183	47	266.15	-1.24	1.6595	2.1722	89.65	635.56	.007
146000	183	51	267.03	-1.23	1.5969	2.0834	91.10	636.62	.007
147000	183	56	267.92	-1.23	1.5368	1.9983	92.55	637.67	.007
148000	184	57	268.08	-1.27	1.4791	1.9222	95.72	637.86	.002
149000	184	57	268.09	-1.32	1.4236	1.8500	99.22	637.68	.001
150000	185	57	268.11	-1.36	1.3703	1.7805	102.72	637.90	.001
151000	185	56	269.01	-1.41	1.3192	1.7084	104.79	638.96	.002
152000	185	55	270.00	-1.45	1.2700	1.6387	106.70	640.14	.002
153000	185	54	270.98	-1.50	1.2227	1.5719	108.62	641.31	.002
154000	185	52	271.89	-1.50	1.1775	1.5087	111.29	642.38	.002
155000	184	51	272.76	-1.48	1.1341	1.4485	114.27	643.41	.002
156000	184	50	273.63	-1.46	1.0923	1.3907	117.24	644.43	.002
157000	183	49	273.90	-1.45	1.0521	1.3381	119.57	644.74	.002
158000	181	48	272.68	-1.46	1.0132	1.2945	120.34	643.31	.003
159000	179	47	271.46	-1.47	.9758	1.2523	121.11	641.87	.003
160000	177	46	270.24	-1.48	.9398	1.2115	121.87	640.43	.003
161000	173	47	269.61	-1.57	.9048	1.1692	125.36	639.68	.004
162000	170	48	269.27	-1.71	.8711	1.1270	130.19	639.28	.005
163000	167	49	268.93	-1.85	.8386	1.0863	135.02	638.87	.005
164000	163	50	268.59	-1.99	.8073	1.0471	139.86	638.47	.005
165000	162	51	268.98	-2.06	.7773	1.0067	142.93	638.93	.002
166000	161	51	269.66	-2.10	.7484	.9668	145.31	639.74	.001
167000	160	51	270.34	-2.14	.7205	.9286	147.69	640.54	.001
168000	160	51	271.01	-2.18	.6938	.8918	150.07	641.34	.001
169000	160	51	271.44	-2.21	.6680	.8574	152.27	641.65	.000
170000	161	50	271.36	-2.23	.6433	.8259	154.12	641.75	.002
171000	163	50	271.27	-2.25	.6195	.7956	155.97	641.64	.002
172000	164	50	271.18	-2.26	.5966	.7664	157.82	641.54	.002
173000	166	50	271.10	-2.28	.5745	.7383	159.67	641.44	.002
174000	167	50	270.92	-2.34	.5532	.7114	163.41	641.23	.002

175000	168	50	270.70	-2.44	.5327	.6656	168.18	640.97	.002
176000	169	51	270.47	-2.53	.5130	.6607	172.96	640.70	.002
177000	169	51	270.25	-2.62	.4940	.6368	177.74	640.44	.002
178000	170	52	270.03	-2.71	.4757	.6137	182.51	640.17	.002
179000	172	51	269.67	-2.78	.4580	.5916	186.26	639.75	.003
180000	175	47	269.17	-2.82	.4409	.5706	188.82	639.15	.007
181000	179	44	268.66	-2.86	.4244	.5503	191.37	638.55	.007
182000	183	41	268.15	-2.90	.4086	.5308	193.93	637.95	.007
183000	187	38	267.64	-2.94	.3933	.5120	196.49	637.34	.007
184000	193	36	267.14	-2.98	.3786	.4938	199.05	636.74	.007
185000	199	33	266.01	-3.10	.3643	.4771	202.78	635.40	.008
186000	205	31	264.61	-3.25	.3504	.4613	207.05	633.72	.008
187000	213	29	263.21	-3.41	.3370	.4461	211.32	632.04	.008
188000	222	27	261.81	-3.56	.3242	.4314	215.58	630.36	.008
189000	232	27	260.41	-3.71	.3118	.4171	219.85	628.67	.008
190000	242	27	259.01	-3.86	.2999	.4034	224.11	626.97	.008
190714	249	27	258.01	-3.97	.2917	.3939	227.16	625.76	.008

MAXIMUM ALTITUDE 201965

ATTACHMENT 4

OUTPUT DISK FILE

PASS 1

1

TEST NUMBER 0000
CAPE CANAVERAL AFS, FLORIDA
1515Z 18 JAN 1984

SUPER LOKI PWN-100

ALT GEOMM	DIR DEG	SPD MPS	TEMP K	TEMP CORR	PRESS MbS	DENSITY G/M3	RF MPS	VS MPS	SHR /SEC
20000	224	13	202.24	-.46	999.9999	999.9999	2.24	283.20	.999
21000	236	14	206.58	-.44	46.6581	79.0216	5.14	288.25	.003
22000	249	17	211.30	-.45	39.8551	65.7097	4.69	291.52	.005
23000	271	16	212.92	-.47	33.9738	55.5876	5.61	292.64	.006
24000	260	21	216.46	-.48	29.0207	46.7066	5.90	295.06	.006
25000	253	23	217.93	-.50	24.8342	39.7002	3.79	296.06	.003
26000	256	26	219.90	-.51	21.2844	33.7199	5.32	297.39	.003
27000	251	27	222.04	-.51	18.2718	28.6684	5.92	298.84	.003
28000	252	32	224.66	-.57	15.6962	24.3400	8.32	300.59	.005
29000	259	32	226.37	-.53	13.5159	20.8008	5.49	301.74	.003
30000	256	32	228.74	-.60	11.6488	17.7414	9.77	303.31	.001
31000	245	35	224.24	-.59	10.0374	15.5944	9.86	300.31	.007
32000	247	34	222.31	-.65	8.6278	13.5207	7.66	299.02	.001
33000	239	35	228.23	-.73	7.4280	11.3387	12.41	302.97	.005
34000	237	36	231.15	-.75	6.4130	9.6655	12.42	304.90	.001
35000	243	38	236.51	-.83	5.5516	8.1776	14.84	308.42	.004
36000	253	41	243.75	-.87	4.8231	6.8933	14.69	313.11	.008
37000	254	41	247.90	-.79	4.2067	5.9119	14.10	315.76	.001
38000	251	36	255.67	-.93	3.6791	5.0131	20.78	320.67	.006
39000	254	30	257.91	-.87	3.2276	4.3598	19.92	322.07	.006
40000	267	27	258.22	-.95	2.8329	3.8140	20.68	322.61	.007
41000	272	24	263.45	-1.07	2.4900	3.2927	23.06	325.51	.004
42000	252	17	265.83	-.95	2.1929	2.8739	22.54	326.98	.010
43000	199	16	264.26	-1.08	1.9314	2.5462	25.29	326.01	.015
44000	183	23	265.60	-1.24	1.7010	2.2312	27.06	326.84	.009
45000	183	29	268.07	-1.25	1.4997	1.9490	28.79	328.36	.006
46000	185	29	268.92	-1.41	1.3233	1.7142	31.89	328.88	.001
47000	185	27	272.06	-1.49	1.1687	1.4966	34.10	330.79	.002
48000	182	25	273.31	-1.45	1.0332	1.3170	36.56	331.55	.002
49000	174	24	269.69	-1.54	.9131	1.1795	37.86	329.35	.003
50000	163	26	268.58	-1.99	.8060	1.0455	42.69	328.66	.005
51000	160	26	270.55	-2.15	.7118	.9166	45.25	329.87	.001
52000	162	26	271.30	-2.24	.6288	.8075	47.32	330.33	.001
53000	167	26	270.95	-2.33	.5557	.7145	49.64	330.11	.002
54000	170	26	270.21	-2.63	.4909	.6329	54.41	329.66	.002
55000	177	24	268.94	-2.84	.4335	.5615	57.90	328.89	.004
56000	191	19	267.28	-2.97	.3826	.4987	60.46	327.82	.002
57000	214	15	263.20	-3.41	.3369	.4460	64.42	325.36	.008
58000	245	14	258.60	-3.91	.2966	.3995	68.68	322.50	.008
58129	249	14	258.01	-3.97	.2917	.3939	69.24	322.13	.008

MAXIMUM ALTITUDE 61559

1

TEST NUMBER 0000
CAPE CANAVERAL AFS, FLORIDA
1515Z 18 JAN 1984

SUPER LOKI FWN-10D

ALT GEOMM	DIR DEG	SPD MPS	TEMP K	TEMP CORR	PRESS MBS	DENSITY G/M3	RR MPS	VS MPS	SHR /SEC
20000	224	13	202.24	-.46	999.9999	999.9999	7.24	285.20	.999
20250	230	14	204.33	-.45	53.0065	90.3771	3.23	286.67	.008
20500	240	11	205.53	-.45	50.8632	86.2151	5.67	287.51	.015
20750	236	10	206.82	-.44	48.8160	82.2270	3.88	288.42	.006
21000	236	14	206.58	-.44	46.8581	79.0216	5.14	288.25	.016
21250	234	18	207.78	-.45	44.9806	75.4187	2.76	289.08	.017
21500	244	19	209.02	-.47	43.1908	71.9885	6.64	289.94	.013
21750	247	18	211.25	-.45	41.4843	68.4129	3.96	291.49	.007
22000	249	17	211.30	-.45	39.8551	65.7097	4.69	291.52	.005
22250	253	17	211.40	-.46	38.2906	63.1007	6.00	291.59	.004
22500	261	18	211.98	-.45	36.7821	60.4611	2.97	291.99	.010
22750	272	18	212.68	-.46	35.3516	57.9083	5.27	292.47	.013
23000	271	16	212.92	-.47	33.9738	55.5876	5.61	292.64	.008
23250	264	16	213.94	-.48	32.6534	53.1739	5.64	293.33	.009
23500	253	18	215.04	-.47	31.3901	50.8551	5.27	294.09	.013
23750	253	20	215.50	-.47	30.1807	48.7912	5.42	294.40	.007
24000	260	21	216.46	-.48	29.0207	46.7066	5.90	295.06	.010
24250	264	21	217.10	-.48	27.9103	44.7662	5.28	295.49	.007
24500	263	21	217.25	-.49	26.8442	43.0470	7.36	295.60	.002
24750	258	22	217.23	-.48	25.8191	41.4074	5.77	295.58	.008
25000	253	23	217.93	-.50	24.8342	39.7002	3.79	296.06	.010
25250	252	24	218.80	-.52	23.8911	38.0410	7.62	296.64	.004
25500	254	25	219.41	-.52	22.9868	36.4983	8.59	297.06	.005
25750	256	25	219.91	-.51	22.1187	35.0402	7.50	297.40	.004
26000	256	26	219.90	-.51	21.2844	33.7199	5.32	297.39	.002
26250	254	26	221.15	-.53	20.4840	32.2684	6.80	298.24	.004
26500	252	26	221.91	-.53	19.7173	30.9546	7.59	298.75	.003
26750	251	27	222.06	-.53	18.9807	29.7784	8.52	298.85	.002
27000	251	27	222.04	-.51	18.2718	28.6684	5.92	298.84	.003
27250	253	29	221.71	-.52	17.5890	27.6380	6.21	298.61	.006
27500	253	30	221.78	-.54	16.9313	26.5959	7.07	298.66	.006
27750	253	31	222.97	-.56	16.3000	25.4677	7.83	299.46	.005
28000	252	32	224.66	-.57	15.6962	24.3400	8.32	300.59	.003
28250	253	32	225.66	-.57	15.1182	23.3394	8.23	301.27	.002
28500	255	32	226.16	-.57	14.5633	22.4331	8.96	301.60	.003
28750	256	32	226.47	-.59	14.0297	21.5823	12.15	301.80	.003
29000	259	32	226.37	-.53	13.5159	20.8008	5.49	301.74	.007
29250	263	33	226.44	-.58	13.0210	20.0326	8.76	301.78	.010
29500	262	33	226.85	-.60	12.5448	19.2657	9.25	302.05	.001
29750	261	33	228.03	-.62	12.0873	18.4670	11.55	302.84	.004
30000	256	32	228.74	-.60	11.6488	17.7414	9.77	303.31	.009
30250	251	32	228.28	-.57	11.2261	17.1325	8.23	303.00	.011
30500	248	33	227.10	-.57	10.8174	16.5943	9.79	302.22	.009
30750	245	34	225.53	-.56	10.4213	16.0978	8.99	301.18	.007
31000	245	35	224.24	-.59	10.0374	15.5944	9.86	300.31	.002
31250	246	34	223.52	-.66	9.6661	15.0659	14.15	299.83	.005
31500	249	34	222.96	-.62	9.3074	14.5432	10.18	299.45	.006
31750	248	34	222.54	-.62	8.9614	14.0289	9.28	299.17	.002
32000	247	34	222.31	-.65	8.6278	13.5207	7.66	299.02	.003
32250	245	34	223.54	-.72	8.3075	12.9470	10.19	299.84	.004
32500	243	34	225.44	-.76	8.0014	12.3648	13.68	301.12	.006

32750	241	35	227.27	-.76	7.7084	11.8159	15.17	302.34	.006
33000	239	35	228.23	-.73	7.4280	11.3387	12.41	302.97	.005
33250	237	36	228.91	.70	7.1588	10.8951	10.06	303.42	.004
33500	236	36	229.60	.72	6.9001	10.4699	12.38	303.88	.004
33750	236	36	230.16	.72	6.6517	10.0681	11.75	304.25	.003
34000	237	36	231.15	.75	6.4130	9.6655	12.42	304.90	.002
34250	239	35	232.53	.80	6.1836	9.2644	14.43	305.81	.004
34500	239	36	233.86	.79	5.9644	8.8851	13.57	306.69	.002
34750	240	37	235.19	.79	5.7536	8.5227	13.38	307.56	.004
35000	243	38	236.51	.83	5.5516	8.1776	14.84	308.42	.008
35250	245	39	237.96	.85	5.3580	7.8442	15.46	309.37	.008
35500	248	40	239.50	.86	5.1719	7.5231	15.57	310.36	.008
35750	250	40	241.55	.86	4.9942	7.2030	15.21	311.69	.008
36000	253	41	243.75	.87	4.8231	6.8933	14.69	313.11	.008
36250	254	41	245.48	.86	4.6603	6.6137	16.45	314.22	.004
36500	255	42	247.19	.86	4.5031	6.3466	18.32	315.30	.004
36750	255	41	247.56	.82	4.3524	6.1250	16.26	315.54	.002
37000	254	41	247.90	.79	4.2067	5.9119	14.10	315.76	.002
37250	253	40	249.44	.86	4.0669	5.6801	15.26	316.74	.005
37500	252	39	251.13	.92	3.9322	5.4550	16.60	317.81	.005
37750	252	38	253.40	.95	3.8035	5.2292	18.69	319.24	.006
38000	251	36	255.67	.99	3.6791	5.0131	20.78	320.62	.006
38250	252	34	256.65	.94	3.5604	4.8330	20.39	321.28	.008
38500	252	32	257.59	.89	3.4455	4.6599	19.95	321.87	.008
38750	253	31	257.98	.87	3.3347	4.5031	19.62	322.12	.006
39000	254	30	257.91	.87	3.2276	4.3598	19.92	322.07	.004
39250	255	29	257.86	.88	3.1239	4.2205	20.03	322.04	.005
39500	259	28	257.98	.89	3.0236	4.0832	20.11	322.11	.008
39750	263	27	258.09	.91	2.9266	3.9503	20.18	322.19	.008
40000	267	27	258.77	.95	2.8329	3.8140	20.68	322.61	.007
40250	270	26	259.64	-1.00	2.7424	3.6798	21.32	323.15	.007
40500	273	25	260.63	-1.04	2.6550	3.5490	21.94	323.76	.005
40750	272	25	262.04	-1.06	2.5712	3.4184	22.50	324.64	.003
41000	272	24	263.45	-1.07	2.4906	3.2922	23.06	325.51	.003
41250	270	23	264.53	-1.05	2.4118	3.1763	23.17	326.18	.006
41500	262	21	265.29	-1.01	2.3365	3.0682	22.86	326.65	.009
41750	262	19	266.06	-.96	2.2635	2.9639	22.56	327.12	.009
42000	252	17	265.83	-.95	2.1929	2.8739	22.54	326.98	.016
42250	238	15	265.31	-.95	2.1245	2.7897	22.61	326.66	.017
42500	222	14	264.80	-.95	2.0583	2.7079	22.75	326.35	.017
42750	210	15	264.53	-1.02	1.9938	2.6258	24.02	326.18	.012
43000	199	16	264.26	-1.08	1.9314	2.5462	25.29	326.01	.012
43250	191	18	264.08	-1.14	1.8710	2.4682	26.44	325.90	.012
43500	188	19	264.59	-1.17	1.8125	2.3865	26.64	326.21	.008
43750	185	21	265.09	-1.21	1.7559	2.3075	26.85	326.52	.008
44000	183	23	265.60	-1.24	1.7010	2.2312	27.06	326.84	.008
44250	183	25	266.30	-1.24	1.6482	2.1562	27.40	327.27	.007
44500	183	26	267.03	-1.23	1.5971	2.0837	27.77	327.72	.007
44750	183	28	267.76	-1.23	1.5476	2.0136	28.13	328.16	.007
45000	183	29	268.07	-1.25	1.4997	1.9490	28.79	328.36	.003
45250	184	29	268.09	-1.29	1.4535	1.8888	29.66	328.36	.001
45500	185	29	268.10	-1.33	1.4086	1.8304	30.54	328.37	.001
45750	185	29	268.11	-1.37	1.3651	1.7738	31.41	328.38	.001
46000	185	29	268.92	-1.41	1.3233	1.7142	31.89	328.88	.002
46250	185	28	269.74	-1.44	1.2827	1.6567	32.37	329.37	.002
46500	185	28	270.55	-1.48	1.2433	1.6010	32.85	329.87	.002

46750	185	27	271.35	-1.51	1.2053	1.5474	33.36	330.36	.002
47000	185	27	272.06	-1.49	1.2687	1.4966	34.10	330.79	.002
47250	184	26	272.78	-1.48	1.1333	1.4474	34.85	331.22	.002
47500	184	26	273.49	-1.46	1.0989	1.3998	35.59	331.66	.002
47750	184	25	274.21	-1.45	1.0656	1.3538	36.33	332.09	.002
48000	182	25	273.31	-1.45	1.0332	1.3170	36.56	331.55	.003
48250	180	25	272.41	-1.46	1.0018	1.2817	36.79	330.94	.003
48500	179	24	271.51	-1.47	.9714	1.2473	36.94	330.33	.003
48750	177	24	270.32	-1.48	.9419	1.2139	37.13	329.73	.003
49000	174	24	269.69	-1.54	.9131	1.1795	37.86	329.35	.004
49250	171	24	269.41	-1.65	.8851	1.1445	39.07	329.18	.005
49500	169	25	269.13	-1.77	.8579	1.1105	40.27	329.00	.005
49750	166	25	268.85	1.88	.8316	1.0775	41.48	328.83	.005
50000	163	26	268.58	-1.99	.8060	1.0455	42.69	328.66	.005
50250	162	26	268.89	-2.05	.7813	1.0123	43.46	328.65	.002
50500	162	26	269.44	-2.08	.7574	.9793	44.06	329.19	.001
50750	161	26	270.00	-2.12	.7343	.9474	44.65	329.53	.001
51000	160	26	270.55	-2.15	.7118	.9166	45.25	329.87	.001
51250	160	26	271.11	-2.19	.6900	.8867	45.84	330.21	.001
51500	160	26	271.44	-2.21	.6689	.8585	46.39	330.41	.000
51750	161	26	271.37	-2.23	.6486	.8326	46.85	330.37	.002
52000	162	26	271.30	-2.24	.6288	.8075	47.32	330.33	.002
52250	163	26	271.23	-2.25	.6097	.7831	47.78	330.28	.002
52500	164	26	271.16	-2.27	.5911	.7595	48.24	330.24	.002
52750	166	26	271.09	-2.28	.5731	.7366	48.70	330.20	.002
53000	167	26	270.95	-2.33	.5557	.7145	49.44	330.11	.002
53250	167	26	270.76	-2.41	.5387	.6931	50.83	330.00	.002
53500	168	26	270.58	-2.48	.5223	.6725	52.03	329.89	.002
53750	169	26	270.40	-2.56	.5063	.6524	53.22	329.78	.002
54000	170	26	270.21	-2.63	.4909	.6329	54.41	329.66	.002
54250	170	27	270.03	-2.71	.4759	.6140	55.61	329.55	.002
54500	171	26	269.77	-2.77	.4614	.5958	56.62	329.39	.003
54750	174	25	269.35	-2.80	.4472	.5784	57.26	329.14	.007
55000	177	24	268.94	-2.84	.4335	.5615	57.90	328.89	.007
55250	180	22	268.52	-2.87	.4201	.5451	58.54	328.63	.007
55500	183	21	268.11	-2.90	.4072	.5292	59.18	328.38	.007
55750	187	20	267.69	-2.94	.3947	.5137	59.82	328.12	.007
56000	191	19	267.28	-2.97	.3826	.4987	60.46	327.87	.007
56250	196	18	266.65	-3.03	.3708	.4844	61.22	327.48	.007
56500	201	17	265.50	-3.16	.3591	.4712	62.29	326.77	.008
56750	207	16	264.35	-3.28	.3478	.4584	63.35	326.07	.008
57000	214	15	263.20	-3.41	.3369	.4460	64.42	325.36	.008
57250	221	14	262.05	-3.53	.3264	.4339	65.49	324.65	.008
57500	229	14	260.90	-3.66	.3161	.4221	66.55	323.93	.008
57750	237	14	259.75	-3.78	.3062	.4107	67.62	323.22	.008
58000	245	14	258.60	-3.91	.2966	.3995	68.68	322.50	.008
58129	249	14	258.01	-3.97	.2917	.3939	69.24	322.13	.008

MAXIMUM ALTITUDE 61559

1

TEST NUMBER 0000

CAPE CANAVERAL AFS, FLORIDA

1515Z 18 JAN 1984

SUPER LOKI PWN-100

ALT (FEET)	DIR DEG	SPD KTS	TEMP K	TEMP CORR	PRESS MBS	DENSITY G/M3	RF KTS	VS KTS	SHR /SEC
66000	225	27	203.03	-.46	54.1962	92.4960	14.42	555.10	.999
67000	239	23	205.17	-.46	51.5245	87.4883	20.61	558.02	.012
68000	236	19	206.73	-.44	49.0046	82.5830	11.28	560.14	.007
69000	235	28	206.68	-.44	46.6190	78.5813	16.91	560.07	.015
70000	238	37	208.44	-.45	44.3550	74.1346	8.36	562.45	.016
71000	247	36	210.03	-.46	42.2184	70.0286	12.85	564.59	.009
72000	248	33	211.29	-.46	40.2032	66.2687	25.67	566.28	.005
73000	253	32	211.40	-.46	38.2878	63.0961	19.69	566.43	.005
74000	263	35	212.16	-.46	36.4660	59.8804	13.41	567.44	.011
75000	273	33	212.96	-.45	34.7381	56.8271	10.74	568.52	.010
76000	266	31	213.52	-.48	33.0963	53.9993	20.60	569.27	.007
77000	254	35	214.92	-.47	31.5406	51.1254	16.81	571.13	.013
78000	254	32	215.52	-.42	30.0642	48.5998	16.28	571.92	.007
79000	261	40	216.70	-.48	28.6637	46.0815	18.60	573.49	.010
80000	265	41	217.23	-.48	27.3334	43.8364	19.73	574.18	.004
81000	259	42	217.18	-.48	26.0661	41.8120	18.72	574.13	.007
82000	253	45	217.90	-.50	24.8587	39.7446	12.79	575.07	.010
83000	253	47	218.91	-.52	23.7130	37.7380	26.08	576.40	.004
84000	255	49	219.70	-.52	22.6240	35.8754	29.56	577.44	.004
85000	257	50	219.89	-.49	21.5875	34.2027	13.55	577.69	.003
86000	254	51	220.98	-.53	20.6005	32.4768	23.21	579.13	.004
87000	252	51	221.92	-.53	19.6643	30.8699	26.08	580.35	.003
88000	251	52	222.10	-.51	18.7724	29.4464	23.19	580.58	.002
89000	251	54	221.89	-.52	17.9210	28.1366	20.04	580.32	.004
90000	252	58	221.62	-.53	17.1074	26.8927	22.12	579.96	.006
91000	253	61	222.87	-.56	16.3324	25.5302	25.73	581.59	.005
92000	252	62	224.82	-.57	15.5982	24.1654	28.28	584.20	.003
93000	254	62	225.88	-.56	14.9014	22.9826	22.90	585.51	.003
94000	255	62	226.41	-.60	14.2379	21.9077	41.59	586.20	.002
95000	258	63	226.38	-.54	13.6048	20.9369	19.31	586.15	.005
96000	261	64	226.45	-.58	12.9999	19.9994	28.76	586.25	.010
97000	262	64	227.16	-.60	12.4230	19.0525	32.33	587.16	.002
98000	259	63	228.38	-.61	11.8739	18.1130	35.34	588.74	.006
99000	253	63	228.56	-.58	11.3508	17.3017	28.36	588.97	.010
100000	248	64	227.20	-.57	10.8495	16.6360	31.37	587.22	.010
101000	245	67	225.28	-.56	10.3670	16.0317	27.82	584.73	.007
102000	245	67	223.92	-.63	9.9027	15.4037	39.28	583.02	.001
103000	248	66	223.19	-.64	9.4572	14.7616	38.90	582.02	.005
104000	249	66	222.61	-.62	9.0306	14.1325	30.28	581.26	.002
105000	247	66	222.31	-.65	8.6225	13.5125	24.99	580.86	.003
106000	245	67	224.00	-.74	8.2340	12.8059	37.54	583.07	.005
107000	242	67	226.27	-.76	7.8668	12.1120	47.11	586.02	.006
108000	239	68	228.00	-.74	7.5181	11.4873	45.02	588.25	.005
109000	237	69	228.83	-.70	7.1870	10.9416	32.17	589.33	.005
110000	236	71	229.67	-.72	6.8717	10.4236	40.83	590.40	.004
111000	236	69	230.35	-.72	6.5713	9.9385	37.72	591.27	.003
112000	238	70	231.91	-.78	6.2856	9.4425	44.38	593.27	.004
113000	239	71	233.55	-.79	6.0141	8.9709	45.24	595.37	.003
114000	240	72	235.17	-.79	5.7559	8.5266	43.83	597.43	.003
115000	243	74	236.78	-.83	5.5104	8.1076	49.68	599.47	.008
116000	246	76	238.62	-.85	5.2776	7.7052	50.88	601.79	.008
117000	249	78	240.77	-.86	5.0560	7.3158	50.49	604.50	.008
118000	253	79	243.46	-.87	4.8457	6.9340	48.43	607.87	.008

119000	254	80	245.63	-.86	4.6467	6.5905	54.48	610.57	.004
120000	255	81	247.33	-.85	4.4566	6.2774	58.39	612.68	.002
121000	254	80	247.72	-.91	4.2755	6.0127	49.55	613.17	.002
122000	253	79	249.04	.84	4.1024	5.7388	49.08	614.79	.004
123000	252	76	251.04	-.92	3.9372	5.4638	54.20	617.25	.005
124000	252	77	253.81	-.96	3.7807	5.1893	62.55	620.65	.006
125000	251	68	256.08	-.97	3.6311	4.9399	67.75	623.42	.007
126000	252	64	257.23	-.91	3.4888	4.7250	66.01	624.82	.008
127000	253	60	257.99	-.87	3.3523	4.5267	64.95	625.75	.007
128000	254	58	257.90	-.87	3.2215	4.3516	65.39	625.64	.004
129000	257	56	257.89	-.88	3.0958	4.1820	65.78	625.63	.006
130000	261	54	258.03	-.90	2.9750	4.0167	66.09	625.80	.008
131000	266	52	258.52	-.94	2.8592	3.8530	67.26	626.39	.008
132000	270	51	259.58	-1.00	2.7482	3.6884	69.82	627.67	.007
133000	273	49	260.85	-1.04	2.6419	3.5285	72.28	629.20	.005
134000	272	48	262.52	-1.06	2.5406	3.3709	74.50	631.27	.003
135000	272	46	264.22	-1.07	2.4432	3.2214	76.42	633.25	.003
136000	267	41	265.15	-1.01	2.3505	3.0883	75.19	634.37	.009
137000	262	37	266.08	-.96	2.2613	2.9607	73.97	635.48	.009
138000	249	32	265.70	-.95	2.1756	2.8526	74.01	635.03	.016
139000	230	28	265.06	-.95	2.0932	2.7511	74.30	634.26	.017
140000	213	29	264.62	-1.00	2.0137	2.6511	72.51	633.73	.014
141000	200	31	264.29	-1.07	1.9371	2.5535	82.58	633.33	.012
142000	190	35	264.15	-1.14	1.8635	2.4577	86.82	633.16	.011
143000	187	39	264.76	-1.19	1.7927	2.3589	87.65	633.90	.008
144000	184	43	265.38	-1.23	1.7246	2.2641	88.48	634.64	.008
145000	183	47	266.15	-1.24	1.6595	2.1722	89.65	635.56	.007
146000	183	51	267.03	-1.23	1.5969	2.0834	91.10	636.62	.007
147000	183	56	267.92	-1.23	1.5368	1.9983	92.55	637.67	.007
148000	184	57	268.08	-1.27	1.4791	1.9222	95.22	637.86	.002
149000	184	57	268.09	-1.32	1.4236	1.8500	99.22	637.88	.001
150000	185	57	268.11	-1.36	1.3703	1.7805	102.72	637.90	.001
151000	185	56	269.01	-1.41	1.3192	1.7084	104.79	638.96	.002
152000	185	55	270.00	-1.45	1.2700	1.6387	106.70	640.14	.002
153000	185	54	270.98	-1.50	1.2227	1.5719	108.62	641.31	.002
154000	185	52	271.89	-1.50	1.1775	1.5087	111.29	642.38	.002
155000	184	51	272.76	-1.48	1.1341	1.4485	114.27	643.41	.002
156000	184	50	273.63	-1.46	1.0923	1.3907	117.24	644.43	.002
157000	183	49	273.90	-1.45	1.0521	1.3381	119.57	644.74	.002
158000	181	48	272.68	-1.46	1.0132	1.2945	120.34	643.31	.003
159000	179	47	271.46	-1.47	.9758	1.2523	121.11	641.87	.003
160000	177	46	270.24	-1.48	.9398	1.2115	121.87	640.43	.003
161000	173	47	269.61	-1.57	.9048	1.1692	125.36	639.68	.004
162000	170	48	269.27	-1.71	.8711	1.1270	130.19	639.28	.005
163000	167	49	268.93	-1.85	.8386	1.0863	135.02	638.87	.005
164000	163	50	268.59	-1.99	.8073	1.0471	139.86	638.47	.005
165000	162	51	268.98	-2.06	.7773	1.0067	142.93	638.93	.002
166000	161	51	269.66	-2.10	.7484	.9668	145.31	639.74	.001
167000	160	51	270.34	-2.14	.7205	.9286	147.69	640.54	.001
168000	160	51	271.01	-2.18	.6938	.8918	150.07	641.34	.001
169000	160	51	271.44	-2.21	.6680	.8574	152.27	641.85	.000
170000	161	50	271.36	-2.23	.6433	.8259	154.12	641.75	.002
171000	163	50	271.27	-2.25	.6195	.7956	155.97	641.64	.002
172000	164	50	271.18	-2.26	.5966	.7664	157.82	641.54	.002
173000	166	50	271.10	-2.28	.5745	.7383	159.67	641.44	.002
174000	167	50	270.92	-2.34	.5532	.7114	163.41	641.23	.002

175000	168	50	270.70	-2.44	.5327	.6856	188.18	640.97	.002
176000	169	51	270.47	-2.53	.5130	.6607	172.96	640.70	.002
177000	169	51	270.25	-2.62	.4940	.6368	177.74	640.44	.002
178000	170	52	270.03	-2.71	.4757	.6137	182.51	640.17	.002
179000	172	51	269.67	-2.78	.4580	.5916	186.26	639.75	.003
180000	175	47	269.17	-2.82	.4409	.5706	188.82	639.15	.007
181000	179	44	268.66	-2.86	.4244	.5503	191.37	638.55	.007
182000	183	41	268.15	-2.90	.4086	.5308	193.93	637.95	.007
183000	187	38	267.64	-2.94	.3933	.5120	196.49	637.34	.007
184000	193	36	267.14	-2.98	.3786	.4938	199.05	636.74	.007
185000	199	33	266.01	-3.10	.3643	.4771	202.78	635.40	.008
186000	205	31	264.61	-3.25	.3504	.4613	207.05	633.72	.008
187000	213	29	263.21	-3.41	.3370	.4461	211.32	632.04	.008
188000	222	27	261.81	-3.56	.3242	.4314	215.58	630.36	.008
189000	232	27	260.41	-3.71	.3118	.4171	219.85	628.67	.008
190000	242	27	259.01	-3.86	.2999	.4034	224.11	626.97	.008
190714	249	27	258.01	-3.97	.2917	.3939	227.16	625.76	.008

MAXIMUM ALTITUDE 201965

ATTACHMENT 5

INTERMEDIATE SCRATCH FILE, DUMP AND BINARY

INTERMEDIATE FILE, ROCKETSONDE PROGRAM

HEIGHT MTS	CORRECTED X COMPONENT	CORRECTED Y COMPONENT	UN-CORRECTED X COMPONENT	UN-CORRECTED Y COMPONENT	CORRECTED TEMP DEGREES-C	UN-CORR TEMP DEGREES-C	PRESSURE MBS	FALL RATE MPS
19197.42	-10.91	3.27	-16.35	-8.07	197.1	197.1	999.900	-.04
19209.82	-6.96	-.13	-16.98	-5.99	197.3	197.3	999.900	-.79
19396.25	-5.07	-2.62	-15.13	-3.50	197.7	197.7	999.900	-4.97
19461.02	-6.07	-13.58	-12.45	-3.11	197.5	197.5	999.900	-6.02
19610.36	-9.78	-.29	-10.87	3.29	197.4	197.4	999.900	-3.93
19694.32	-7.51	-2.62	-6.94	-.14	199.2	199.2	999.900	-1.66
19734.26	-6.88	-5.02	-5.07	-2.64	201.5	201.5	999.900	-1.00
19821.23	-7.50	-7.21	-6.11	-13.66	202.4	202.4	999.900	-4.83
20000.00	-8.87	-9.19	-9.79	-12.39	202.2	202.7	1.742	-7.24
20002.80	-8.87	-9.19	-9.79	-12.39	202.2	202.7	1.742	-7.24
20160.87	-10.32	-10.09	-12.12	-5.62	203.3	203.8	1.731	-3.30
20258.64	-10.99	-9.01	-11.60	-6.91	204.4	204.9	1.724	-3.22
20403.30	-10.39	-6.30	-10.46	-7.66	205.1	205.5	1.713	-6.43
20575.81	-9.06	-5.03	-8.23	-9.50	205.9	206.3	1.701	-5.08
20694.45	-8.05	-5.22	-8.03	-2.09	206.6	207.0	1.693	-2.83
20812.98	-8.33	-5.94	-7.64	-3.30	207.1	207.5	1.684	-5.07
20905.71	-9.77	-6.64	-9.20	-5.81	206.9	207.3	1.677	-1.11
20999.60	-11.53	-7.78	-11.43	-10.61	206.6	207.0	1.671	-5.14
21154.67	-13.20	-10.14	-14.67	-12.39	207.1	207.5	1.660	-5.19
21267.37	-14.93	-10.66	-15.67	-7.99	207.9	208.4	1.652	-2.32
21340.62	-16.37	-9.97	-14.76	-9.82	208.5	208.9	1.647	-2.56
21483.42	-17.19	-8.55	-16.64	-10.18	208.9	209.4	1.637	-4.96
21645.24	-16.91	-7.26	-18.12	-6.82	210.1	210.5	1.625	-3.83
21762.42	-16.18	-6.97	-17.86	-6.06	211.4	211.8	1.617	-3.98
21942.35	-15.74	-6.28	-15.46	-5.81	211.3	211.7	1.604	-8.02
22071.20	-15.51	-5.47	-13.14	-5.22	211.3	211.8	1.596	-.58
22166.02	-15.52	-5.23	-14.37	-6.69	211.4	211.8	1.589	-5.75
22346.61	-16.08	-4.44	-17.72	-4.59	211.4	211.9	1.576	-6.29
22479.30	-17.15	-3.05	-18.62	-1.58	211.9	212.4	1.567	-2.55
22587.21	-17.98	-1.62	-17.01	-3.06	212.3	212.7	1.560	-4.78
22741.99	-17.77	.43	-17.30	.34	212.7	213.1	1.549	-5.41
22869.64	-16.66	.94	-17.52	1.51	213.0	213.4	1.540	-3.10
23000.34	-15.81	.19	-16.50	.74	212.9	213.4	1.531	-5.61
23172.65	-15.97	-1.25	-15.16	1.23	213.6	214.1	1.519	-6.34
23345.01	-16.45	-3.23	-14.79	-5.13	214.4	214.9	1.507	-4.68
23493.35	-17.38	-5.18	-17.31	-6.61	215.0	215.5	1.497	-5.21
23673.91	-18.71	-5.69	-20.41	-6.48	215.4	215.9	1.485	-6.83
23834.14	-19.61	-5.89	-20.08	-4.28	215.6	216.0	1.474	-3.85
23981.30	-20.44	-3.94	-20.25	-5.20	216.4	216.9	1.464	-5.96
24152.46	-20.54	-2.50	-20.14	-1.32	216.9	217.4	1.452	-5.45
24311.77	-20.80	-1.68	-19.57	-3.57	217.2	217.7	1.442	-5.17
24499.23	-20.89	-2.53	-22.32	.70	217.3	217.7	1.429	-7.36
24694.94	-21.08	-4.04	-21.22	-3.63	217.2	217.7	1.416	-5.65
24870.14	-21.58	-5.61	-22.20	-5.90	217.3	217.8	1.404	-6.03
25013.83	-22.30	-6.88	-20.12	-9.99	218.0	218.5	1.394	-3.55
25181.85	-22.75	-7.54	-23.19	-7.79	218.6	219.2	1.383	-7.65
25420.55	-23.73	-6.92	-24.52	-4.94	219.2	219.7	1.367	-8.26
25684.62	-24.57	-6.28	-24.96	-7.06	219.9	220.4	1.349	-9.34
25881.54	-24.92	-5.82	-24.64	-4.05	219.9	220.4	1.336	-3.79
26022.61	-25.11	-6.29	-25.31	-7.33	219.9	220.4	1.327	-5.62

26213.01	-25.18	-7.14	-24.95	-7.40	221.0	221.5	1.314	7.08
26403.80	-25.12	-7.65	-23.97	-7.85	221.9	222.4	1.301	-6.64
26647.03	-25.20	-8.38	-27.46	-7.80	222.0	222.5	1.285	-10.57
26892.08	-25.44	-8.75	-24.72	-9.07	222.1	222.6	1.269	-5.70
27067.43	-26.11	-9.21	-25.21	-8.97	222.0	222.5	1.257	-6.06
27251.50	-27.29	-8.51	-27.04	-8.86	221.7	222.2	1.245	-6.21
27446.67	-28.40	-9.01	-28.58	-10.22	221.6	222.1	1.232	-6.80
27662.72	-29.63	-8.84	-30.00	-7.71	222.3	222.9	1.218	-7.94
27901.09	-30.48	-9.75	-31.54	-6.42	224.2	224.7	1.202	-7.62
28152.63	-30.43	-9.58	-30.72	-13.50	225.5	226.0	1.186	-9.44
28394.07	-30.77	-8.71	-29.13	-8.03	226.0	226.5	1.170	-6.36
28696.21	-30.83	-8.21	-31.47	-10.80	226.5	227.1	1.151	-13.78
28980.21	-31.54	-6.64	-30.32	-3.33	226.4	226.9	1.132	-5.15
29188.75	-32.56	-4.01	-33.86	-4.47	226.4	227.0	1.119	-8.75
29452.15	-32.78	-4.15	-32.03	-5.54	226.6	227.2	1.102	-8.81
29758.82	-32.37	-5.42	-34.32	-3.21	228.1	228.7	1.082	-11.63
30071.64	-31.32	-8.24	-31.34	-6.18	228.9	229.5	1.062	-9.22
30326.90	-30.41	-11.18	-28.85	-13.58	228.0	228.5	1.045	-7.80
30609.70	-30.43	-13.42	-30.36	-15.26	226.5	227.1	1.027	-11.06
30881.46	-31.45	-15.18	-29.03	-13.86	224.6	225.1	1.009	-7.06
31209.28	-30.95	-13.78	-33.87	-16.45	223.6	224.3	.988	-14.79
31567.77	-31.80	-11.81	-33.03	-11.32	222.8	223.4	.964	-9.11
31844.86	-31.54	-13.01	-33.11	-11.43	222.4	223.0	.946	-9.37
32086.16	-31.38	-13.44	-24.13	-8.36	222.3	222.9	.930	-6.72
32381.59	-30.91	-15.03	-36.02	-18.14	224.6	225.3	.911	-12.98
32809.07	-30.14	-12.35	-29.09	-23.57	227.7	228.5	.883	-15.52
33183.34	-29.81	-19.07	-31.29	-13.24	228.7	229.4	.859	-9.44
33512.30	-30.29	-20.42	-30.33	-21.98	229.6	230.3	.838	-12.49
33870.42	-29.42	-19.77	-26.44	-18.47	230.4	231.2	.815	-11.38
34258.64	-30.86	-18.87	-31.52	-20.22	232.6	233.4	.791	-14.50
34669.76	-31.48	-18.52	-32.85	-19.56	234.8	235.5	.765	-12.91
35094.22	-34.34	-16.87	-34.90	-16.48	237.0	237.8	.739	-15.39
35559.08	-37.24	-14.87	-35.29	-12.74	239.9	240.7	.710	-15.60
36013.07	-38.91	-11.60	-37.42	-12.56	243.9	244.7	.683	-14.66
36508.89	-40.28	-10.50	-44.40	-13.87	247.2	248.1	.653	-18.39
36996.01	-39.65	-11.24	-38.97	-5.36	247.9	248.7	.624	-14.08
37449.98	-37.54	-11.93	-38.26	-9.18	250.7	251.6	.598	-16.18
38004.94	-34.06	-11.52	-34.17	-16.92	255.7	256.7	.565	-20.82
38613.53	-29.93	-9.47	-27.66	-13.01	258.0	258.9	.531	-19.76
39210.11	-28.07	-7.57	-26.95	-5.80	257.8	258.7	.497	-20.02
39813.40	-26.95	-2.64	-26.06	-1.44	258.1	259.0	.463	-20.20
40443.74	-25.59	1.26	-25.44	3.06	260.3	261.4	.427	-21.82
41120.89	-23.63	.65	-25.76	-.01	264.1	265.2	.389	-23.32
41808.04	-18.61	-2.88	-20.61	.49	266.2	267.2	.352	-22.49
42485.51	-9.75	-10.70	-9.98	-11.31	264.8	265.8	.314	-22.68
43221.89	-3.34	-17.16	-3.90	-19.18	264.0	265.2	.274	-26.41
44024.24	-1.09	-22.86	6.17	-25.54	265.6	266.9	.229	-27.08
44854.61	-1.59	-29.06	7.68	-32.83	268.1	269.3	.184	-28.28
45750.02	-2.69	-28.99	-12.94	-21.56	268.1	269.5	.135	-31.41
46720.29	-2.33	-27.31	-11.50	-31.96	271.3	272.8	.083	-33.27
47765.03	-1.57	-25.40	1.08	-30.22	274.3	275.7	.027	-36.38
48869.07	1.70	-23.60	8.65	-14.06	269.8	271.3	-.032	-37.22
50073.09	7.77	-24.86	9.49	-24.35	268.5	270.5	-.098	-43.04
51417.18	9.33	-24.48	5.61	-26.02	271.5	273.7	-.170	-46.23
52838.63	6.09	-24.79	5.89	-24.75	271.1	273.4	-.246	-48.87
54417.78	4.33	-26.48	3.19	-25.61	269.9	272.7	-.331	-56.41

56177.57	-4.53	-17.64	-6.29	-15.57	267.0	270.0	-.427	60.91
58129.80	-14.15	-6.03	-14.15	-5.25	268.0	262.0	-.535	-69.24

```
   8                                                    444A  1058  ..............U).R
  10  C161  B2F1  4134  5C55  C210  5999  C181  2900  A...64\RE.Y.A. .
  18  42C5  2415  4135  2415  435F  7E67  BF90  8888  BE.,BE.,C).G?...
  20  444B  69B3  C16F  4127  C020  4144  C210  4B33  DN.BAOL'@ (0B..3
  28  C15F  E199  42C5  490A  42C5  490A  435E  7E67  A .A.BEI.BEI.C).G
  30  C0CA  B333  444B  6C0C  C151  27DC  C12Y  L1DR  K)J3IDN'7AQ!\A)AE
  38  C1F2  2222  C157  F055  42C5  B84E  4135  684E  AR''A7MUBE8N8E8N
  40  4330  7E67  C14F  83BB  444C  0512  C161  2F59  C).GAO.;DL..AA/Y
  48  C1D7  514F  C1C7  2AA  C151  D2AA  42C5  7911  AYQOAG**A1K*BEY.
  50  42C5  2911  433E  7E6  C160  4C44  444C  9A5B  BEY.C).GA'LDDL.L
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  60  42C5  6DCE  42C5  6DCE  433E  7E67  C13E  F088  BEMNBEMNC).GA)P.
  68  444C  EE53  C178  2961  C129  F053  C16F  0B8B  DLNSAx)IA)PSAo..
  70  D024  6222  42C7  3849  42C7  3849  433F  7E67  @$''BG8IBG8IC).G
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  80  C151  2222  C126  3F77  42C9  B58E  42C9  B58E  AQ''A%ZwBI..BI..
  88  433E  7E67  C0FF  A322  4440  6088  C178  0CF3  C).G@.''DMm;Ax.s
  90  C173  670D  C161  CCCC  C1DA  9666  42CA  6959  AsG.AALLAZ.FBJiY
  98  42CA  6959  433E  7E67  C14D  5222  444E  2000  BJiYC).GAMR"DN .
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  A8  42CA  3DDC  42CA  B419  411B  E115  C173  D111  BJ=\BJ4.A.A.AsQ.
  B0  444E  22CC  C18D  DB98  C193  183F  C19C  B333  DN"LA.C.A..?A.33
  B8  C1C6  4666  42CA  3D2D  42CA  B419  411B  F03F  AFFFBJ=-BJ4.A.'?
  C0  C173  D111  444E  C0DE  C1A5  2BRB  C1A1  7BAF  AsQ.DN@'AZ+;A!./
  C8  C1C1  F777  C159  E5DD  42CB  5617  42CB  C9AC  AAWWAYE]BKV.BKI,
  D0  411B  B145  C134  CAAA  444E  22A3  C1AE  C485  A.1EA4J*DD"$A/D.
  D8  C190  1D08  C189  9999  C16E  9F77  42CC  6E29  A...A9..AN.WBLN)
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  E8  C1A6  382C  C164  D13B  C1A7  6666  C17A  A2AA  A&8;AbQJA'FFA."*
  F0  42CD  1682  42CD  BB71  411B  69CB  C166  CDDD  BN..BH.GA.IKAFMJ
  F8  4450  5FD0  C190  F730  C150  8969  C183  BBBB  DP_PA.W=AP..A.;;
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 118  411B  1469  C12D  55DD  4451  4CFA  C185  546A  A...A-U]DQL.A.TJ
 120  C15E  EDEB  C17A  3BBB  C134  B888  42CF  14D9  A^.KA.;;A48.BU.Y
 128  42CF  84BE  411A  F202  C151  1666  4451  A9B7  BO.)A.A.AQ.FDQ)7
 130  C19C  5F15  C16A  416E  C193  3BRB  C15C  EB33  A._.AJANA.;;A\K3
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 158  C1EA  C444  C1C6  32AA  42CF  1045  42CF  8611  AJDDAF2*BO.EBU..
 160  411A  8E7A  C153  1888  4453  135E  C1EF  E798  A...AS..DS.^ANG.
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 1B8  42D3  0728  4119  0F40  C13F  ACCC  4455  B659  BSW+A._MA?;LDU6Y
 1C0  C1FB  C9D5  C164  6C39  C1F7  5DDD  C15C  E88B  A.IUADL9AWJJA\H.
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1F8  C147  1759  C211  B999  C149  73B8  42D3  6bFE  AG.YB.9.AIs;BSK.
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208  C211  26CC  C130  D086  C212  9E66  C119  3D55  B.&LAO].B..FA.=U
210  42D3  EA08  42D4  5E33  4119  1311  C128  D5DD  BSJ.RT`3A...A(U]
218  4458  3035  C211  FB4E  C119  F015  C211  0222  DX=5B..NA.F.B.."
220  C131  0111  42D4  43F1  42D4  B9A9  4118  F3DB  A1..BfCgB19)A.sl
228  C14C  6666  4458  D5F0  C211  C54E  406E  C320  ALFFDXU.B.EN@nC
230  C211  4D55  4057  0000  42D4  A816  42D5  1E51  B.MU@W..Bf(.BU.Q
238  4118  C68D  C156  9199  4459  55A5  C210  A9D8  A.H.AV..DYUZB.)X
240  40F1  D3B0  C211  8444  4118  2800  42D4  ECD7  @qSOB..DA.(.Bf.W
248  42D5  6FA1  4118  A46E  C131  9911  4459  D658  BUo!A.$nA1..DYXX
250  C1FC  F221  402F  B010  C210  7EEE  40BC  7777  A.rI@/0.B..n@(ww
258  42D4  E8D2  42D5  653E  4118  7F79  C159  D068  BTxRBUe)A..yAYP.
260  4456  8BA6  C1FF  95C1  C113  F9A7  C1F2  8888  DZ.&A..AA.y'Ar..
268  4113  A333  42D5  93A8  42D6  0FFE  4118  4CD8  A.#3BU.(BV..A.LX
270  C165  7199  445B  3103  C210  7380  C133  AA4C  AEq.DLi.B.s.A3*L
278  C1EC  AAAA  C152  1999  42D6  6B96  42D6  E551  AL**AR..BVk.BVeQ
280  4118  1E52  C14A  F111  445B  C55A  C211  6214  A..RAJq.DLEZB.b.
288  C152  E0C7  C211  4EEE  C169  C444  42D7  0546  AR`GB.NnAiDDBW.F
290  42D7  7E59  4117  F4BA  C153  4422  445C  79EA  BW.YA.t:ASJ"D\yJ
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2B0  C144  76AA  42D7  8r8E  42D8  06E1  4117  9577  AD.*BW..BX.aA..u
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2E8  4209  35B7  4209  B011  4117  10BA  C152  B800  BY57BYO.A..:AR8.
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2F8  4082  5DD0  4209  4045  4209  BCD8  4116  DCA6  @2]]BY@EBY(DA.\&
300  C175  C777  4460  76F1  C215  13DB  C140  9251  AuGwD`vqB..XA@.Q
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318  C159  C80B  C216  32AA  C15E  5CCC  4209  5468  AYH.B.2*A^\LBYTH
320  42D2  D114  4116  760B  C160  6F77  4461  B5D4  BYQ.A.v.A`owDaST
328  C216  4D79  C16E  0A0E  C214  1E66  C19F  D868  B.MyAn..B..FA.X.
330  42D2  FD9A  42DA  7026  4116  4E4E  C138  D4CC  BY..BZ.&A.NNA8TL
338  4462  500A  C216  6FE0  C178  9655  C217  3068  DpJZB.?`Ax.UB.0.
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348  C17A  6444  4463  4C8C  C217  BB7D  C16E  6F74  A.pDDcL.B.;.An?t
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360  C164  727E  C218  F555  C171  0088  42DB  EC95  Anr.B.uUAq..BLl.
368  420C  721C  4115  9606  C195  7666  4465  198B  B\r.A...A.vFDe..
370  C218  EC17  C15D  0D71  C218  62AA  C140  D999  B.l.A].qB.'*A@Y.
378  42DB  E24B  420C  5DA4  4115  6027  C13C  9666  BCrKB\]$A.`'A<.F
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388  C175  3555  420B  E7CB  42DC  6CAE  4115  398F  AU5UBEGKB\E..A.9.
390  C159  E111  4466  6503  C219  2E6C  C172  3A94  A)A.DFF.B..EAR:.
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3F8  42DF  3AC1  4113  EC1B  C163  5D55  446B  36AB  B^:AA.L.ACJUDK6+
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408  420D  9C0F  42DE  251E  4113  B729  C16C  D199  BI..B^%.A.7)ALQ.
410  446C  13B8  C21D  A01F  C18D  7C40  C21D  FF6E  DL.8B. .A..@B..N
418  C17B  6999  42DE  536E  42DE  E36B  4113  7B48  A.I.B^SNB^CKA..H
420  C17E  F800  446C  FD1B  C21E  7AAA  C19B  F04F  A.x.DL..B..*A.P/
428  C21F  6911  C166  C199  42E0  2907  42E0  B91E  B...AFA.B`).B`9.
430  4113  3C6E  C179  F6EE  446D  FD07  C21E  6EFD  A.(NAVVNDM..B.N.
438  C199  422F  C21E  B75D  C1D7  FA22  42E1  747A  A.B/B.7]AW."BAT.
440  42E2  0916  4112  F7FB  C19Z  0777  446E  EA12  BB..A.W.A..WDNJ.
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458  4470  1837  C21E  04AC  C183  6026  C21F  7799  DP.7B.T.A.`&B.W.
460  C1AC  C199  42E2  7D23  42E3  1891  4112  6895  A.A.BB.*BC..A.H.
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470  C21E  504A  C135  5BBB  42E2  5DFB  42E2  E54C  B.P*A5C]BBJ.BBEL
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490  C220  CB4A  C142  6019  C220  07D5  C158  A222  B HJAB`.B .UAX""
498  42E2  9EC8  42E3  36AC  4111  9FF4  C16C  F911  BB.HBC6;A..TA.Y.
4A0  4474  3ED1  C220  5EA1  C156  C019  C222  525U  DI)QB 2IAV@.B"RJ
4A8  C133  4999  42E4  11A3  42E4  B114  4111  4EE6  A3I.BD.#BD1.A.NF
4B0  C1BA  22AA  4475  77A5  C21F  50BA  C183  DDC3  A:"*DUW%B.P:A.JC
4B8  C21F  564C  C162  E222  42E4  F0EE  42E5  6866  B.VLABB"BDPNBE.F
4C0  4110  FCA5  C193  BBBB  4476  76E7  C21E  699U  A..%6..IDVVGB.I.
4C8  C1B2  F5AE  C21C  D9CC  C1D9  3666  42E3  FDB1  A2U.B.YLAY6FBC.I
4D0  42E4  8BF1  4110  B986  C17C  BB33  4477  91B2  BD.QA.9.A.I3DW.2
4D8  C21E  6E8B  C1D6  B0AE  C21E  5C44  C1F4  3555  B.N.AVO.B.\DAT5U
4E0  42E2  B941  42E3  1C69  4110  6EC6  C1BC  EA22  BB.ABC.IA.NFAOJ"
4E8  4478  A177  C21F  7381  C1F2  CDF0  C21D  06D5  DX!WB.S.AAMPB..U
4F0  C1DB  C444  42F0  925B  42E1  2519  4110  2667  AJDDB`.[BA%.A.&G
4F8  C170  F911  4479  E948  C21E  F355  C1DC  841D  APY.DYIHB.SUA\..
500  C221  DD91  C210  7272  42DF  9B4B  42E0  45E9  BIJ.B.RWB_.KB`EI
508  40FC  E8BA  C1EC  B222  447B  4FC4  C21F  CD88  @.H:AL2"D.OD8.M8
510  C1BD  0559  C221  0733  C1B5  0CDC  42DE  CFAE  A=.YB!.3A5.LB"N.
518  420F  6B6E  40F6  E189  C191  B088  447C  640B  B_K)@VA.A.O.D.DE
520  C21E  8618  C1D0  1DA6  C221  1B99  C1B6  D555  B...AP.&BI..A6UU
528  420E  6698  420F  06D9  40F2  359F  C195  DF77  B^F.B_.Y@A5.A._W
530  447D  561A  C21F  603E  C1D7  1935  C218  2280  D.V.B.`)AW.5B.".
538  C165  BAAA  420E  4187  420E  ECE3  40EE  2333  A.:*B^A7B^LC@N#3
540  C16B  7444  447E  7D96  C21F  E85E  C1F0  89CD  AKTDD...B.H"AP.M
```

```
548  C224  0600  C212  2350  42E0  9260  42E1  54F6  B*..B.*JB`.mBaIv
550  40L9  2CBY  C1CF  BAAA  4480  2912  C21E  234D  @I;9A0:*D.).B.*M
558  C211  5A07  C210  1844  C217  92CC  42E3  B40F  B.Z.8..DB..LBc4.
560  42E4  78C6  40E2  150E  C1FB  4199  4481  9F58  BnxF@e..AxA.D..X
568  C210  D060  C213  1108  C21F  4AC4  C1D3  C333  B.PmB...B.JDASC3
570  42E4  B98B  42E5  6ADB  40DB  EF0C  C196  F777  Bn9.BE.F@LN.A.ww
578  4482  E84C  C21E  4AA7  C214  6C8C  C21E  54AA  D.HLB.J'B.L.B.T*
580  C215  F9E6  42F5  A1BB  42F6  5993  40N6  8887  B.yFBE!;BFY.@V.7
588  C1C7  EAAA  4484  4E6C  C21D  6888  C213  C631  AGJ*D.NLB.KjB.Fl
590  C21A  6F80  C212  7891  42E6  6E9E  42E7  2746  B.o.B.x.BFN.Bn'F
598  40D0  B4E2  C1B6  1555  4465  D2A3  C21E  DBE0  GP4uA6.UD.R*B.Em
5A0  C212  DE51  C21F  8555  C214  3899  42E8  937C  B.^QB..UB.8.BH..
5A8  42E9  6056  40CA  6AF5  C1E8  0333  4487  60C3  Bx`V@JJuAH.3D.mC
5B0  C21E  7A2E  C212  8629  C220  DA6E  C213  9099  B...B..)B ZnB...
5B8  42EA  C38F  42EB  8A33  40C3  D208  C1CE  6500  BJC?Bk.3@CR.AN.J
5C0  44B9  1638  C222  55DB  C210  DE14  C222  E644  D..8B`UCB.^.B"FD
5C8  C210  78E6  42ED  0140  42E0  D62E  40BD  12ED  B..FBm.@BmX.@=.m
5D0  C1F6  3B33  448A  E715  C225  3CE7  C1EB  ECEF  AvI3D.G.BZ(GAmLo
5D8  C223  4A99  C1CB  D444  42EF  DD2B  42F0  B8AE  B*J.AKTDBo1+BpB.
5E0  40B5  C3E8  C1F9  9EFE  448C  AD11  C276  E91B  @SChAY.ND.-.B&I.
5E8  C189  9122  C225  6C19  C1C9  06EE  42F3  DEC2  A9.'BZL.AI.NBs^B
5F0  42E4  BD76  40AF  BADD  C1EA  A111  448E  9CE4  Bt=v@.iJAJi.D..p
5F8  C228  48DA  C1A8  0BD6  C22C  66A2  C1DD  F4CC  B(HZA(.VB;F"AjtL
600  42F7  3EDA  42F8  1AE1  40A7  29AF  C212  6408  Bw)ZBx.A@!)/B.D.
608  4490  8403  C227  A5F5  C1B3  C6B7  C226  F800  D...B'ZuA3F7B&x.
610  C155  B999  42F7  DF3B  42F8  A9GC  409F  CA2C  AU9.Bw_iBx).@.J.
618  C1E1  5800  4492  49FC  C225  6999  C1BE  D992  AAX.D.I.BZ..A)Y.
620  C226  42DD  C192  E888  42FA  AB97  42FB  94D9  B&B14.M.B.+.B..Y
628  4098  F773  C210  2E44  4494  74F0  C222  0EB4  @.wsB..DD.tpB".4
630  C1B9  0C3C  C222  2A44  C210  F92A  42FE  B7CE  A9.(B"*DB.y*B.7N
638  4310  0B43  4090  C19A  C214  D0F7  4496  D588  C..C@.A.B.PwD.U.
640  C21D  ECFA  C197  B73D  C21R  A811  C1D0  1A22  B.L.A..=B.(.AP."
648  4310  2062  4310  2E4D  4087  E201  C213  C1AA  C. BC..M@.B.B.A*
650  4499  2A1C  C21C  1158  C179  2941  C21A  F45D  D.*.B..XAy)AH.tJ
658  C15C  0B8B  4310  1D7E  4310  2B77  407F  38D8  A\C;C...C.+w@.8X
660  C214  03EE  449B  8566  C21A  F2DD  C12A  29F4  B..ND..FB.BJA*)T
668  C21A  0F55  C117  1333  4310  21F6  4310  30A2  B..UA..3C.!vC.0"
670  4076  7798  C214  3433  449D  EBBE  C219  96DC  @vw.B.43D..)B..\
678  4114  1A68  C219  7177  4130  F666  4310  44FC  A..hB.qwA0vFC.D.
680  4310  559F  406D  5D70  C215  D16A  4460  A0E5  C.U.@mJpB.Q*D E
688  C217  A239  40D8  C9C0  C219  C2EE  BF2C  CCCC  B."9@XI@B.BN7;LL
690  4310  822F  4310  9366  4063  B373  C217  5319  C../C..F@c3sB.S.
698  44A3  500A  C212  9D0C  C12E  25C1  C214  9D00  D*P.B...A.%AB...
6A0  407C  9111  4310  A3BF  4310  B2EE  405A  0185  @...C.*7C.2N@Z..
6A8  C216  7C2A  44A5  F582  C198  F702  C1AB  3718  B..*|%u.A.w.A+7.
6B0  C19F  B2AA  C1B4  E26A  4310  BD10  4310  9C44  A.2*A4B*C...C..D
6B8  4050  762D  C216  ADF7  44A8  D5E3  C135  792B  GPv-B.-wD(UcA5y+
6C0  C211  2967  C15E  6199  C213  2E11  4310  8065  B.)gA)A.B...C..E
6C8  4310  928D  4046  0BE1  C21A  6988  44AB  F83D  C...@F.AB.I.D+x=
6D0  C111  83BC  C216  DBAD  4162  A6EE  C219  89A6  A..<B.[-AB&NB..&
6D8  4310  9A58  4310  AE48  403A  B7F3  C21B  13EE  C..XC..H@:7sB..N
6E0  446F  359B  C119  7B25  C21D  0F93  417A  DD55  D/6.A..%B...A.JU
6E8  C220  D39C  4310  C109  4310  D4A2  402F  163E  B S.C.A.C.T"@/.)
6F0  C21C  478A  44B2  B605  C12B  0441  C21C  FDFD  B.GxD26.A+.AB...
6F8  C1CF  0000  C215  8FFA  4310  C1CF  4310  D7BA  AO..B...C.AOC.W:
700  4022  9AE8  C21F  6A11  44B6  804B  C125  34BE  @".hB.J.D6.KAZ4)
```

```
708  C21B  4E48  C187  F800  C21F  F530  4310  F437  B.NKA7x.B.00C.t7
710  4311  0C39  4015  29F4  C221  464C  44BA  9508  C..Y@.)tB!FLDB..
718  C119  311A  C219  6684  4111  4199  C21E  3708  A.1.B.f4A.A.B.7X
720  4311  2405  4311  3B2A  3F6B  BC93  C224  60DB  C.$.C.;*?k<.B*`3
728  44BE  E513  4118  33A2  C217  9A14  418A  75UD  D)E.A.3"B...A.uJ
730  C1E1  0768  4310  DD70  4310  F519  BF84  B1C7  AA.HC.]pC.u.?.1G
738  C225  3980  44C3  9918  417C  5B77  C218  0D36  B29.DC..A.[wB.16
740  4192  D6EF  C218  5890  4310  C7E6  4310  E853  A.VnB.X.C.GfC.hS
748  C018  FCF6  C228  0B11  44C8  D42F  4195  4A2A  @..vB+..DHT/A.J*
750  C218  242A  4159  CL66  C21A  062C  4310  F784  B..*AYNfB..,C.w.
758  4311  1ADF  C028  7E07  C22E  3AB8  44CE  66A1  C..._@+..B.:7ONf!
760  4161  209E  C218  C8FB  415E  44CC  C218  C064  Aap.B.H.A^DLB.@d
768  4310  F113  4311  159D  C03F  1A0A  C230  0DF7  C.q.C...@?..B0Jw
770  44D4  91C7  4145  5BE1  C21A  7A34  4133  04CC  DT.GAE[aB..4A3.L
778  C219  9D12  4310  DE85  4311  0AB2  C054  DCDF  B...C.^.C..2@T\_
780  C238  68CC  44DB  2193  C148  84CD  C211  42F1  BdHLDLq.AH.MB.!q
788  C164  AAAA  C1F9  1FAA  4310  AFB1  4310  DF97  Ad**Ay.*C./1C._.
790  C06D  4901  C23C  E911  44E3  11CE  C1D2  6BF5  @mI.B<i.Dc.NARku
798  C150  8D97  C1E2  6AAA  C153  F6F7  4310  201B  AP..AbJ*ASvwC. .
7A0  4310  5FB0  C088  F9F0  C245  3D08  ====  ====  C._0@.yPBE=....
```

ATTACHMENT 6

PROGRAM LISTING

```
C
C       PWN-3/6A/12D ROCKET REDUCTION
C
C       ROCKET(P1)
C
        INCLUDE 'DATA5'
        INTEGER BUFFER(256),RECORD(32)
        INTEGER RAWINDAY,RAWINMONTH,RAWINYEAR
        DATA MNTAB/'JAN ','FEB ','MAR ','APR ','MAY ','JUN ','JUL ',
     *  'AUG ','SEP ','OCT ','NOV ','DEC '/
        DATA BUFFER,RECORD,TIME1O,TIMELAST,ROLLOVER,TIME,PREVTIME,
     *  RADIAN,1001,1002,1003,PC,RE,ORDINAT
     *  /288*0,5*0.0,57.29578,1,2,3,47.442,6371229.315,
     *  0.95/
        EQUIVALENCE (SALT,BUFFER(12)),(STEMP,BUFFER(14)),(SPRESS,BUFFER(16)),
     *  (ITIME,RECORD(2)),(SLANTRANGE,RECORD(11)),
     *  (AZIMUTH,RECORD(17)),(ELEVATION,RECORD(19)),(TEMP1,RECORD(21)),
     *  (TEMP2,RECORD(23)),(TEMP3,RECORD(25))
C
C       INITIALIZE THE INTERMEDIATE AND OUTPUT FILES
C
        DELETE 'TAPE1'
        DELETE 'TAPE2'
        DELETE 'ROCKETOUT'
C
C       INITIALIZE THE RAW DATA INPUT FILE
C
        TYPE '(32)(36)          ROCKET REDUCTION(12)(12)(12)'
        PAUSE 'MOUNT DATA DISK ON DRIVE 1'
        CALL INIT ('DP1')
        OPEN 1002,'TAPE2',LEN=20
        OPEN 1001,'DP1:MSSDATA',ATT='R',ERR= 30
C
C       READ THE TEMPERATURE CORRECTION COEFFICIENTS
C
        OPEN 3,'ROCKETABLE.PM',ATT='L',LEN=208,ERR=110
        READ(3,ERR=110,END=110)(ATC(I),BTC(I),CTC(I),DTC(I),I=1,51)
        READ(3,ERR=110,END=110)(CTD(I),I=1,51)
        CLOSE 3
C
C       ASK THE OPERATOR IF THIS WAS A NIGHT LAUNCH
C
2       WRITE(10,200)
        READ(11,201,ERR=2,END=2)INPUT
        NIGHT=.FALSE.
        IF(INPUT.EQ.'YE')NIGHT=.TRUE.
        IF(.NOT.NIGHT.AND.INPUT.NE.'NO')GOTO 2
C
C       ASK THE OPERATOR FOR THE LIST DEVICE
C
4       WRITE(10,204)
        READ(11,201,ERR=4,END=4)INPUT
        IF(INPUT.EQ.'CN')IOU3=10
        IF(INPUT.EQ.'PR')OPEN 1003,'QTY:2',ATT='FL',LEN=221
        IF(INPUT.NE.'CN'.AND.INPUT.NE.'PR')GOTO 4
C
```

```
C       ASK THE OPERATOR FOR THE STATION NUMBER
C
5       WRITE(10,205)
        READ(11,204,END=5,ERR=5)STANUM
        IF(STANUM.LT.1)GOTO 5
C
C       ASK OPERATOR FOR FIRST GOOD TIME
C
6       WRITE(10,202)
        READ(11,207,END=6,ERR=6)STIME
C
C       READ THE STATION NAME FROM THE STATION NAME FILE
C       IF THE STATION IS UNLISTED, ASK THE OPERATOR FOR THE STATION NAME
C
        IF(STANUM.GT.97)GOTO 9
        OPEN(4,'STATIONIDS.FM',ATT='L',LEN=30
        DO 8 I=1,STANUM+1
        READ(4,209)(STATIONID(J),J=1,15)
8       CONTINUE
        CLOSE 4
        GOTO 10
9       WRITE(10,210)
        READ(11,209,END=9,ERR=9)(STATIONID(I),I=1,15)
C
C       READ THE HEADER BLOCK AND GET THE RUNTIME AND SIZE INFORMATION
C
10      IBLK=0
        CALL RDBLK(IOU1,IBLK,BUFFER,1,IER)
        IF(IER.NE.1)GOTO 100
        NBLKS=BUFFER(153)
        IHR=BUFFER(149)
        IMIN=BUFFER(150)
        ISEC=BUFFER(151)
        I1=IHR/10
        I2=IHR-I1*10
        I3=IMIN/10
        I4=IMIN-I3*10
        ENCODE(ROCKTIME,1)I1,I2,I3,I4
        ZAT=SALT*.3048
C
C       GET THE TEST NUMBER AND THE DATE, AND CONVERT THE START
C       TIME TO SECONDS SINCE MIDNIGHT
C
        DO 13 I=1,5
        IDTYPE(I)=BUFFER(I)
13      CONTINUE
        IDAY=FLD(BUFFER(148),1,5)
        IMON=FLD(BUFFER(148),6,9)
        MONTH=MNTAB(IMON)
        IYR=FLD(BUFFER(148),10,16)+1900
        PTIM=FLOAT(IHR)*3600.0+FLOAT(IMIN)*60.0+FLOAT(ISEC)
        SONDE='  '
        ISONDE='10'
        SONDETYPE=BUFFER(6)
        IF(SONDETYPE.EQ.102)SONDE='A '
        IF(SONDETYPE.EQ.103)SONDE='C '
```

```
      IF(SONDETYPE.EQ.104)SONDE='D'
C
C     READ A BLOCK OF DATA FROM THE DATA FILE
C
   14 IBLK=IBLK+1
      CALL RDBLK(IGU1,IBLK,BUFFER,1,IER)
      IF(IER.EQ.9.OR.IBLK.GT.NBLKS)GOTO 30
      IF(IER.NE.1)GOTO 100
C
C     UNPACK A RECORD FROM THE BUFFER
C
      DO 20 I=0,7
      DO 15 J=1,32
   15 RECORD(J)=BUFFER(I*32+J)
C
C     RECORD GOOD?
C
      IF(ELEVATION.LE.0.0.OR.SLANTRANGE.EQ.999999.0)GOTO 20
C
C     CONVERT TIME TO FLOATING POINT
C
      PREVTIME=TIME
      TIMELAST=TIME10
      TIME10=TIME
      TIMEX=TIME10
      IF(TIME10.LT.0.0)TIMEX=65536.0+TIME10
      IF(TIME10.GE.0.0.AND.TIMELAST.LT.0.0)ROLLOVER=ROLLOVER+1.0
      TIME=TIMEX+ROLLOVER*65536.0
      TIME=TIME/10.0
      IF(TIME.LT.STIME)GOTO 20
C
C     CONVERT THE TIME TO SECONDS SINCE MIDNIGHT
C
      ISEC=ISEC+IFIX(TIME-PREVTIME)
      IF(ISEC.LT.60)GOTO 16
      ISEC=ISEC-60
      IMIN=IMIN+1
   16 IF(IMIN.LT.60)GOTO 17
      IMIN=IMIN-60
      IHR=IHR+1
   17 TTIM=FLOAT(IHR)*3600.0+FLOAT(IMIN)*60.0+FLOAT(ISEC)
C
C     TEMPERATURE CHECK
C
C     1=GOOD, 0=BAD
C
C     TEMP      7     6     5     4     3     2     1     0
C    ------------------------------------------------------
C     TEMP1  |  1  |  1  |  1  |  1  |  0  |  0  |  0  |  0  |
C     TEMP2  |  1  |  1  |  0  |  0  |  1  |  1  |  0  |  0  |
C     TEMP3  |  1  |  0  |  1  |  0  |  1  |  0  |  1  |  0  |
C    ------------------------------------------------------
C
      ICT=1
      IF(TEMP1.LT.999.0)ICT=ICT+4
      IF(TEMP2.LT.999.0)ICT=ICT+2
```

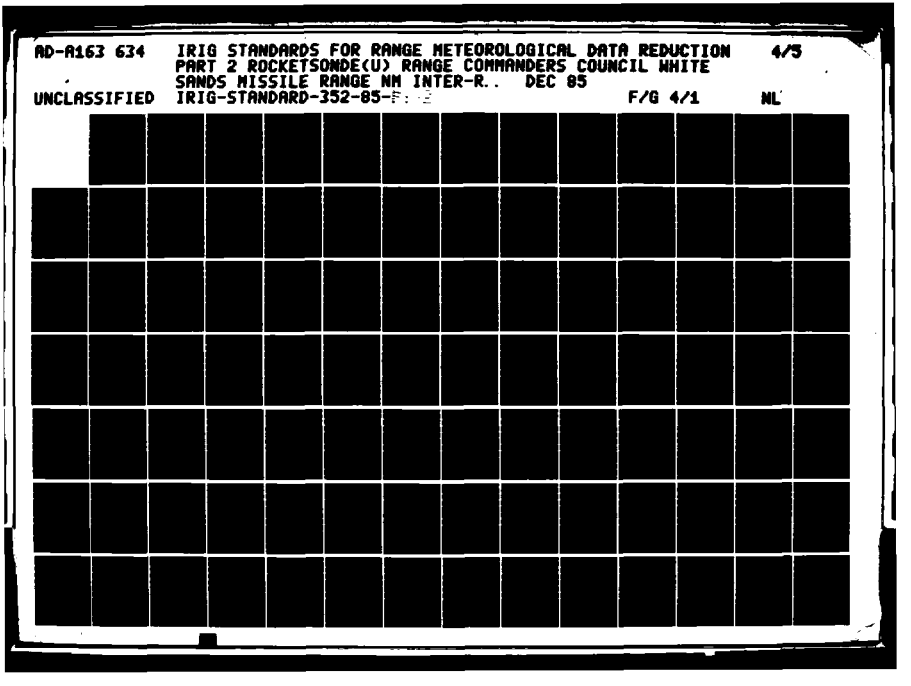
```
      IF(TEMP3.LT.999.0)ICT=ICT+1
      GOTO (40,41,42,43,44,45,46,47),ICT
40    TMP=999.9
      GOTO 19
41    TMP=TEMP3
      GOTO 19
42    TMP=TEMP2
      GOTO 19
43    TMP=(TEMP2+TEMP3)/2.0
      GOTO 19
44    TMP=TEMP1
      GOTO 19
45    TMP=(TEMP1+TEMP3)/2.0
      GOTO 19
46    TMP=(TEMP1+TEMP2)/2.0
      GOTO 19
47    TMP=(TEMP1+TEMP2+TEMP3)/3.0
C
C     CONVERT THE TEMPERATURE TO KELVIN
C
19    IF(TMP.NE.999.9)TMP=TMP+273.15
      WRITE(IOU2)TIM,TMP,AZIMUTH,ELEVATION,SLANTRANGE
20    CONTINUE
      GOTO 14
30    CONTINUE
C
C     ASK THE OPERATOR TO REMOVE THE DATA DISKETTE AND REPLACE IT
C     WITH THE S DISKETTE
C
      CLOSE IOU1
      CALL RELEASE("DP1",IER)
      PAUSE 'REMOVE DATA DISK FROM DP1 AND MOUNT CORAWINSONDE DISK IN DP1'
      CALL INIT("DP1")
C
C     READ THE ID FILE TO GET THE START TIME OF THE CO-RAWIN
C     AND CHECK TO MAKE SURE IT'S WITHIN LIMITS
C
      OPEN IOU1,"DP1:CONTROLFILE",ATT="L",LEN=110,ERR=120
      READ(IOU1)(X,I=1,7),I,ID,IM,IY,X,IT,(X,I=1,10),RLAT,X,X,X,X,X
      RPTIM=FLOAT(IT/100)*3600.0+FLOAT(MOD(IT,100))*60.0
      IF(ID.NE.IDAY.OR.IM.NE.IMON.OR.IY.NE.IYR.OR.ABS(PTIM-RPTIM).GT.21600.0)
     * GOTO 140
      CLOSE IOU1
      CLOSE IOU2
      OPEN IOU1,"TAPE1",LEN=20
      OPEN IOU2,"TAPE2",LEN=20
C
C     CALCULATE THE GEOPOTENTIAL GRAVITY COEFFICIENT
C     AND OUTPUT THE RUN CHECKOUT TAB
C
      CALL GRAVITY
      CALL CHKOUT(ROCKTIME)
C
C     CALCULATE THE MID-POINT OF ALL THE DATA LEVELS
C     AND CORRECT THE TEMPERATUR
```

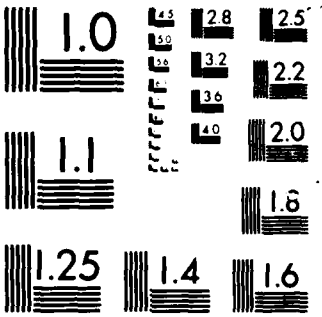
```
            CALL MIDINT
            CALL RANDTC
C
C       COMPARE THE ROCKET OBSERVATION TO THE CO--RAWINSONDE
C       TO GET A PRESSURE BASELINE AND CALCULATE THE TWO KILOMETER WIND LAYERS
C
            CALL COMPRSR(IH1,IH2,IM1,IM2,RAWINDAY,RAWINMONTH,RAWINYEAR,
           * ROCKTIME)
            CALL TWOKM
C
C       CALCULATE THE PRESSURE AND DENSITY, OUTPUT THE TABULATED DATA AND
C       PLOT THE TEMPERATUR CURVE
C
            CALL PRESCOM
            CALL ONEKILO(ROCKTIME)
            IF(IOU3.EQ.3)CALL PLOTCH(ROCKTIME)
            DELETE "ROCKSAVE"
            OPEN 20,"ROCKSAVE",ATT="L",LEN=80
            WRITE(20)IH1,IH2,IM1,IM2,RAWINDAY,RAWINMONTH,RAWINYEAR,
           * (IDTYPE(I),I=1,3),(STATIONID(I),I=1,15),ROCKTIME,IDAY,
           * MONTH,IYR,GRAT,KE,ISONDE,IOU3,STANUM,IMON
            CLOSE 20
C
C       CLOSE THE FILES AND QUIT.
C
            CLOSE IOU2
            CLOSE IOU1
            CALL RELEASE("DP1",IER)
            STOP
C
C       ERROR MESSAGES
C
  100       TYPE "ERROR",IER," ON MSS DATA FILE - ABORT"
            STOP
  110       TYPE "ERROR OR END OF FILE ON ROCKET TABLES - ABORT"
            STOP
  120       TYPE "ERROR ON OPEN OF CO-RAWINSONDE FILES - ABORT"
            STOP
  130       TYPE "ERROR ON OPEN OF MSS DATA FILE - ABORT"
            STOP
  140       TYPE "CO-RAWINSONDE TAKEN MORE THAN 6 HOURS BEFORE LAUNCH - ABORT"
            STOP
C
C       FORMAT STATEMENTS
  200       FORMAT(/"(13)WAS THIS A NIGHT LAUNCH (YES/NO): ...(10)(10)(10)",Z)
  201       FORMAT(A2)
  202       FORMAT(/"(13)WHAT IS THE FIRST GOOD TIME: XXX(10)(10)(10)",Z)
  203       FORMAT(F5.1)
  204       FORMAT(/"(13)OUTPUT TO CONSOLE OR PRINTER (CNS/PRT): ...",
           * 3("(10)"),Z)
  205       FORMAT(/"(13)ENTER STATION NUMBER FROM M.D.G.: XX(10)(10)",Z)
  206       FORMAT(I2)
  207       FORMAT(F3.0)
  208       FORMAT(15A2)
  210       FORMAT(/"(13)ENTER STATION ID(MAXIMUM 30 CHARACTERS): ",
           * 30(",")/41X,"(13)",Z)
```

```
END
```

```
      REAL MAXALT,MONTH,MNTABC(12)
      LOGICAL NIGHT
      DOUBLE PRECISION GRAT,EC,EP
      INTEGER STATIONID(5),SOND
      COMMON/DATA/KC,ZAT,MAXALT,HBL,EBL,YEP,XEP,HSP,MNTAB,KLAT,
     > X,Y,Z,ALT(51),REF(51),CIC(51),DIC(51),CIB(51),PC,GRAT,PBL,
     * CONE,CON2,ENO,WS,EX,EA,ER,EC,EO,NOTEMP,NOBS,STATIONID,KIS,
     * IN(8),INA(8),IROCK,IAT,INT,INF,IEW,ICW,IND1,IDN,IDAY,MONTH,
     * IHR,IMIN,DIFYEE(5),IOUT,IOU2,IGUS,OLGUG,GRDINAT,NIGHT,IYR,
     * MXALTS,H,DX,DY,I,DIF,P,
     * F,SONDF,ISONDE
```

```
      SUBROUTINE MIDINT
      FUNCTION 'DATAS'
      READ(IOU1)G,T,XX,YY,ZZ
      MAXAL T=ZZ
   98 READ(IOU1,END=99)GA,TA,XA,YA,ZA
      TP=(T+TA)/2.0
      IF(T.EQ.999.9.OR.TA.EQ.999.9)TP=999.9
      H=(ZZ+ZA)/2.0
      GG=(G+GA)/2.0
      D=GA-G
      VX=(XX-XA)/D
      VY=(YY-YA)/D
      VZ=(ZA-ZZ)/D
      WRITE(IOU2)H,VZ,VX,VY,TP,GG
      G=GA
      T=TA
      XX=XA
      YY=YA
      ZZ=ZA
      GOTO 98
   99 CLOSE IOU1
      CLOSE IOU2
      OPEN IOU1,'TAPE1',LEN=32
      OPEN IOU2,'TAPE2',LEN=24
      RETURN
      END
```


AD-A163 634 IRIG STANDARDS FOR RANGE METEOROLOGICAL DATA REDUCTION 4/5
PART 2 ROCKETSONDE(U) RANGE COMMANDERS COUNCIL WHITE
SANDS MISSILE RANGE NM INTER-R.. DEC 85
UNCLASSIFIED IRIG-STANDARD-352-85- F/G 4/1 NL



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A

```
      SUBROUTINE BANDIC
      ENCODE (80,60,
      DATA AA,AB,AC,AD,IF,IEND/0.0,0.0,0.0,0.0,0,0/
      READ(IDC,2)H1,Z1,X1,Y1,T1,U1
      UX1=X1
      UY1=Y1
      UT1=T1
      READ(IDC,2)H2,Z2,X2,Y2,T2,U2
      UX2=X2
      UY2=Y2
      UT2=T2
      GO=SNGL(GRAT*9.80616D0)
   10 READ(IDC,2,END=50)H3,Z3,X3,Y3,T3,U3
      UX3=X3
      UY3=Y3
      UT3=T3
      I=999.9
      DT=U3-U1
      D=((Z3-Z1)/DT)+GR
      VX=X2-((Z2*((X3-X1)/DT))/D)
      VY=Y2-((Z2*((Y3-Y1)/DT))/D)
      XC=VX-X2
      YC=VY-Y2
      V=SQRT(Z2**2+XC**2+YC**2)
      IF(H2.LT.20000.0)GOTO 30
      IF(T1.EQ.999.9.OR.T2.EQ.999.9.OR.T3.EQ.999.9)GOTO 40
      I=71-IFIX(H2/1000.)
      IF(H2.GE.70000.)I=1
      T4=T2**4
      AA=A(C(I)*(V*V)
      AB=B(C(I)*((T3-T1)/DT)
      AC=C(C(I)
      IF(NIGHT)AC=CD(C(I)
      AD=D(C(I)*T4
      I=T2-AA+AB-AC+AD
      GOTO 40
   30 I=T2
   40 DT=UT2
      IF(I.EQ.999.9)DT=999.9
      WRITE(IDC,10)H2,Z2,VX,VY,U2,UY2,T,DT
      TC=T-UT2
      H1=H2
      H2=H3
      Z1=Z2
      Z2=Z3
      X1=X2
      X2=X3
      Y1=Y2
      Y2=Y3
      UX1=UX2
      UX2=UX3
      UT1=UY2
      UY2=UY3
      T1=T2
      T2=T3
      UT1=UT2

   13:55:18  29 MAR, 1984    ROCKET REDUCTION PASS #1 - BANDIC              PAGE
```

```
      U12=U13
      61=62
      62=63
      GOTO 50
50    CLOSE (OUT)
      CLOSE (UNIT)
      OPEN (OUT,'TAPE1',LEN=32
      OPEN (UNIT,'TAPE2',LEN=32
      RETURN
      END
```

```
      SUBROUTINE TWOKM
      REAL XC(9,9),XB(9),XX(9),XC(9,9),YA(9,9),YB(9),YY(9),YC(9,9)
      REAL HEIGHT(5),FALLRT(5),CORDX(5),CORDY(5),TEMP(5),TMPCOR(5),A(8)
      INCLUDE 'DECLS'
      DO 10 I=1,4
      READ(IOU1)HA,FA,XX(I),YY(I),UXA,UYA,TA,UTA
   10 WRITE(IOU2)HA,FA,XX(I),YY(I),UXA,UYA,TA,UTA
      DO 20 I=1,4
   20 READ(IOU1)HEIGHT(I),FALLRT(I),XX(I+4),YY(I+4),CORDX(I),CORDY(I),
     * TEMP(I),TMPCOR(I)
   30 READ(IOU1,END=50)HEIGHT(5),FALLRT(5),XX(9),YY(9),CORDX(5),CORDY(5),
     * TEMP(5),TMPCOR(5)
      SX=999.9
      SY=999.9
      DO 50 I=1,9
      IF(XX(I).EQ.999.9)GOTO 110
   50 CONTINUE
      DO 60 I=1,9
      XC(I,1)=1.
   60 YC(I,1)=1.
      DO 70 J=2,3
      DO 70 I=1,9
      XC(I,J)=XC(I,J-1)*I
   70 YC(I,J)=YC(I,J-1)*I
      DO 80 I=1,3
      DO 80 J=1,3
      XA(I,J)=0.
      YA(I,J)=0.
      DO 80 K=1,9
      XA(I,J)=XA(I,J)+XC(K,I)*XC(K,J)
   80 YA(I,J)=YA(I,J)+YC(K,I)*YC(K,J)
      DO 90 I=1,3
      XB(I)=0.
      YB(I)=0.
      DO 90 K=1,9
      XB(I)=XB(I)+XC(K,I)*XX(K)
   90 YB(I)=YB(I)+YC(K,I)*YY(K)
      CALL SIMQ(XA,XB,3)
      CALL SIMQ(YA,YB,3)
      SX=25.*XB(3)+5.*XB(2)+XB(1)
      SY=25.*YB(3)+5.*YB(2)+YB(1)
  110 WRITE(IOU2)HEIGHT(1),FALLRT(1),SX,SY,CORDX(1),CORDY(1),TEMP(1),
     * TMPCOR(1)
      DO 130 I=1,8
      XX(I)=XX(I+1)
  130 YY(I)=YY(I+1)
      DO 140 I=1,4
      J=I+1
      HEIGHT(I)=HEIGHT(J)
      FALLRT(I)=FALLRT(J)
      CORDX(I)=CORDX(J)
      CORDY(I)=CORDY(J)
      TEMP(I)=TEMP(J)
  140 TMPCOR(I)=TMPCOR(J)
      GOTO 30
  150 DO 160 I=1,4
```

```
  160     WRITE(IOU2)HEIGHT(I),FAIRT(I),XX(I),YY(I),CORDX(I),CORDY(I),TEMP(I),
         * INPCOR(I)
          CLOSE IOU1
          CLOSE IOU2
          OPEN IOU1,'TAPE1',LEN=32
          OPEN IOU2,'TAPE2',LEN=32
          DO 200 I=1,1000
          READ(IOU2,END=201)A
  200     CONTINUE
  201     I=I-1
          IF(L.GT.I)GOTO 205
          DO 202 J=1,I
          IF(J.NE.1)BACKSPACE IOU2
          BACKSPACE IOU2
          READ(IOU2)HA,FA,X,Y,UXA,UYA,TA,UTA
          IF(HA.GT.70249.0)TA=999.9
  202     WRITE(IOU1)HA,FA,X,Y,UXA,UYA,TA,UTA
  205     CLOSE IOU1
          CLOSE IOU2
          OPEN IOU1,'TAPE1',LEN=32
          OPEN IOU2,'TAPE2',LEN=36
          RETURN
          END
```

```
      SUBROUTINE SIMU(A,B,N)
      DIMENSION A(1),B(1)
      IJ = N
      DO 65 J=1,N
      IC=IJ-1
      JJ=JJ+N+1
      BIGA=0
      IF (JJ)
      DO 30 I=J,N
      IJ=IJ+1
      IF(ABS(BIGA).GE.ABS(A(IJ)))GOTO 30
      BIGA=A(IJ)
      IMAX=I
   30 CONTINUE
      IF(ABS(BIGA).LE.0.0)RETURN
      II=J+N*(J-2)
      IT=IMAX-J
      DO 50 K=J,N
      II=II+N
      I2=II+IT
      SAVE=A(II)
      A(II)=A(I2)
      A(I2)=SAVE
      A(II)=A(II)/BIGA
   50 CONTINUE
      SAVE=B(IMAX)
      B(IMAX)=B(J)
      B(J)=SAVE/BIGA
      IF(J.EQ.N)GOTO 70
      IGS=N*(J-1)
      DO 63 IX=JY,N
      IXJ=IGS+IX
      IT=J-IX
      DO 60 JX=JY,N
      IXJX=N*(JX-1)+IX
      JJX=IXJX+IT
      A(IXJX)=A(IXJX)-(A(IXJ)*A(JJX))
   60 CONTINUE
      B(IX)=B(IX)-(B(J)*A(IXJ))
   63 CONTINUE
   65 CONTINUE
   70 NY=N-1
      IT=N*N
      DO 90 J=1,NY
      IA=IT-J
      IB=N-J
      IC=N
      DO 80 K=1,J
      B(IB)=B(IB)-A(IA)*B(IC)
      IA=IA-N
      IC=IC-1
   80 CONTINUE
   90 CONTINUE
      RETURN
      END
```

```
      SUBROUTINE PRESCOM
      INCLUDE 'DATA6'
      PFL=999.9
      KSW=0
      IBLSW=0
  100 READ(IGU1,END=99)H,F,XX,YY,UX,UY,T,UT
      RE=SNGL(GRAT*((RE*DBLE(H))/(RE+DBLE(H))))
      IF(HBL.LE.H)GOTO 10
      WRITE(IGU2)H,XX,YY,UX,UY,1,UT,PFL,F
      GOTO 100
   10 IF(HBL.EQ.H)GOTO 101
      IBLSW=1
      IF((H-HBL).LE.3000.)GOTO 101
      KSW=1
      PBL=999.9
      TBL=999.9
      F=999.9
  101 IF(PBL.GT.99.)GOTO 109
      PFL=ALOG10(PBL)
      GOTO 110
  109 KSW=1
  110 TP=TBL
      HP=SNGL(GRAT*((RE*DBLE(HBL))/(RE+DBLE(HBL))))
      WRITE(IGU2)HBL,XX,YY,UX,UY,TP,UT,PFL,F
      IF(IBLSW.EQ.1)BACKSPACE IGU1
  108 READ(IGU1,END=99)H,F,XX,YY,UX,UY,T,UT
      PRSLG=999.9
      IF(KSW.EQ.1)GOTO 107
      HI=SNGL(GRAT*((RE*DBLE(H))/(RE+DBLE(H))))
      IF(T.NE.999.9.AND.TP.NE.999.9)GOTO 105
      KSW=1
      GOTO 107
  105 TV=(T+TP)/2.
      PRSLG=PFL+((HI-HP)/(SNGL(PC)*TV))
      HP=HI
      PFL=PRSLG
      TP=T
  107 WRITE(IGU2)H,XX,YY,UX,UY,1,UT,PRSLG,F
      GOTO 108
   99 CLOSE IGU1
      CLOSE IGU2
      OPEN IGU1,'ROCKETOUT',LEN=80,ATT='L'
      OPEN IGU2,'TAPE2',LEN=36
      RETURN
      END
```

```
      SUBROUTINE ONEKIL0(ROCKETIME)
      INCLUDE 'DATASS'
      NSW=0
      IUN1=1
      IUN2=1
      HINT=1000.
  106 WRITE(IUO3,80)(IDENTPC(I),I=2,3),STATIONID,ROCKETIME,IDA),
     * MONTH,IYR,ISONDE,SONDE
      WRITE(IUO1,80)(IDENTPC(I),I=2,3),STATIONID,ROCKETIME,IDA),
     * MONTH,IYR,ISONDE,SONDE
   80 FORMAT('1','/' TEST NUMBER',5X,2A2,/1X,15A2/1X,64,'Z  ',I2,
     * 1X,A4,I4//,' SUPER LUN1  TWN ',A2,A1)
      SPDUNITS='M/S '
      IALT=' G'
      ALTUNITS='EDMM'
      IF(NSW.NE.2)GOTO 50
      SPDUNITS='KTS '
      IALT='GE'
      ALTUNITS='ONEF'
   50 WRITE(IUO1,4)IALT,ALTUNITS,(SPDUNITS,I=1,3)
      WRITE(IUO3,4)IALT,ALTUNITS,(SPDUNITS,I=1,3)
      NSW=NSW+1
      XTP=999.9
   51 READ(IUO2)HA,XA,YA,UXA,UYA,TA,UTA,PA,FA
      IF(HA.LT.1.)GOTO 51
      HA=HA*CON2
      HSP=HA
      HS=AINT(HA/1000.0)*1000.0+HINT
  109 IF(HS.GT.HA)GOTO 103
      HS=HS+HINT
      GOTO 109
  103 READ(IUO2,END=99)HB,XB,YB,UXA,UYA,TB,UTB,PB,FB
      HB=HB*CON2
  100 IF(HS.NE.HB)GOTO 102
      CALL OUTPUT(HS,XB,YB,TB,UTB,PB,FB)
      HS=HS+HINT
  105 HA=HB
      XA=XB
      YA=YB
      TA=TB
      UTA=UTB
      PA=PB
      FA=FB
      GOTO 103
  102 IF(HS.GE.HB)GOTO 105
      RAT=(HS-HB)/(HA-HB)
      XX=VALUE(RAT,XA,XB)
      YY=VALUE(RAT,YA,YB)
      T=VALUE(RAT,TA,TB)
      U=VALUE(RAT,UTA,UTB)
      P=VALUE(RAT,PA,PB)
      F=VALUE(RAT,FA,FB)
      CALL OUTPUT(HS,XX,YY,T,U,P,F)
      HS=HS+HINT
      GOTO 100
   99 HS=HA
```

```
      CALL OUTPUT(NS,XA,YA,TA,UTA,FA,FA)
      MAXALT=MAXALT*FEET
      WRITE(LOUT,1)MAXALT
      WRITE(LOUT3,1)MAXALT
1     FORMAT(///' MAXIMUM ALTITUDE ',F10)
      REWIND 10U2
      HINT=250.
      IF(NSW.LE.1)GOTO 106
      IF(NSW.GT.2)RETURN
      HINT=1000.
      CONT=1.942569
      CONV=3.280843
      GOTO 106
4     FORMAT('   ALT      DIR    SPD    TEMP      TEMP    PRESS    DENSITY',
     *'     RF       VS      SHR'/2X,A2,A4,'   DEG    ',A4,'     K       CORR ',
     *'    MBS      G/M3        ',A4,3X,A4,'    /SEC '/)
      END
```

```
      SUBROUTINE OUTPUT(HS,XX,YY,TEMP,TMPCOR,PRESS,IS)
      INCLUDE 'DATAS'
      DOUBLE PRECISION PS,DS
C
      RRND(X)=AINT(X+SIGN(0.5,X))
C
      DIR=WDIR(XX,YY)
      SPD=WSPD(XX,YY)
      IF(SPD.NE.999)SPD=SPD*CON1
      PS=9.99999D2
      DS=9.99999D2
      VS=999.99
      FX=999.99
      WS=.999
      IF(TEMP.NE.999.)GOTO 101
      TEMP=999.99
      TMPCOR=999.99
  101 TC=TEMP-TMPCOR
      IF(PRESS.NE.999.9)PS=1.0D1**DBLE(PRESS)
      IF(TEMP.EQ.999.99.OR.PRESS.EQ.999.9)GOTO 110
      DS=(PS/DBLE(TEMP))*3.48348D2
      VS=(331.45*SQRT(TEMP/273.15))*CON1
  110 IF(FS.NE.-999.9)FX=-FS*CON2
      IF(XX.NE.999.9.AND.XIP.NE.999.9)
     *  WS=(SQRT((XX-XIP)*(XX-XIP)+(YY-YIP)*(YY-YIP))*CON2)/(HS-HSP)
      IF(HBL.NE.HS)GOTO 114
      DS=9.999999D2
      PS=9.99999902
  114 IF(HS.LT.20000.0)RETURN
      IF(HS.LT.65616.66.AND.CON1.NE.1)RETURN
      WRITE(IOU1,3)HS,RRND(DIR),RRND(SPD),TEMP,TC,PS,DS,FX,VS,WS
      WRITE(IOU3,3)HS,RRND(DIR),RRND(SPD),TEMP,TC,PS,DS,FX,VS,WS
    3 FORMAT(1X,I7,2I6,2F8.2,2F9.4,2F8.2,F6.3)
      HSP=HS
      XIP=XX
      YIP=YY
      RETURN
      END
```

```
      SUBROUTINE PLOTCH(ROCKTIME)
      INTEGER ICT(50)
      INCLUDE 'DATA5'
C-
      FORMAT('1',56X//1X,64,'/',12,1X,64,14//
     *  ' ROCKET FOKI DATASONDE FWN ',A2,A1/' TEST NUMBER ',3A2//
     *  ' ASCENT RATE ',2A2//15X,'205  210  215  220  225  230  235  '
     *  '240  245  250  255  260  265  270  275  280  285  290  295  MS'/)
    5 FORMAT(1/,5X,50A2)
C-
      WRITE(IOU3,1)STATIONID,ROCKTIME,IDAY,MONTH,IYR,
     *  ISONDE,SONDE,IDTYPE
      REWIND IOU2
      NRECS=0
  100 READ(IOU2,END=110)HS,X,X,X,X,T,X,X,X
      NRECS=NRECS+1
      GOTO 100
  110 BACKSPACE IOU2
      READ(IOU2)HS,X,X,X,X,T,X,X,X
      H=HS-AMOD(HS,1000.0)
      DO 120 I=1,NRECS
      HSP=HS
      TP=T
      BACKSPACE IOU2
      BACKSPACE IOU2
      READ(IOU2,END=150)HS,X,X,X,X,T,X,X,X
      IF(HS.GT.70000.)GOTO 160
  125 IF(H.GT.HSP.OR.H.LT.HS)GOTO 120
      RATIO=(H-HS)/(HSP-HS)
      TINT=999.9
      IF(T.NE.999.9.AND.TP.NE.999.9)TINT=RATIO*(TP-T)+T
      KK=100
      IF(TINT.NE.999.9)KK=TINT-200.0
      IF(KK.LE.0.OR.KK.GT.100)KK=100
      DO 130 K=1,50
  130 ICT(K)=' '
      DO 140 K=5,100,5
  140 CALL PUTC(ICT,K,1R.)
      CALL PUTC(ICT,KK,1R1)
      WRITE(IOU3,5)H,ICT
  160 H=H-1000.0
      GOTO 125
  120 CONTINUE
  150 REWIND IOU2
      RETURN
      END
```

```
      SUBROUTINE COMPXYZ
C
C     COMPUTES X, Y AND Z FROM R, EL AND RANGE
C     AZIMUTH AND ELEVATION MUST BE IN RADIANS, RANGE MUST BE IN YARDS
C
      INCLUDE 'DATAS'
      COMMON/XYZ/R,AL,EL
      DOUBLE PRECISION DBLR,DZAT,REZAT
C
C     CONVERT RANGE TO METERS AND PERFORM SINGLE TO DOUBLE CONVERSIONS
C
      R=R*.9144
      DBLR=DBLE(R)
      DZAT=DBLE(ZAT)
      REZAT=RE+DZAT
C
C     CALCULATE Z
C
      Z=SNGL(DSQRT(REZAT**2+DBLR**2+2.0D0*DBLR*REZAT*
     *  DSIN(DBLE(EL)))-RE)
C
C     CORRECT ELEVATION ANGLE FOR EARTH'S CURVE
C
      EL=EL+((Z*(COS(EL)/SIN(EL)))/SNGL(2.2*RE))
C
C     CALCULATE X & Y
C
      X=R*COS(EL)*SIN(AL)
      Y=R*COS(EL)*COS(AL)
      RETURN
      END
```

```
      SUBROUTINE GRAVITY
C     COMPUTES G RELATIVE ACCELERATION OR GRAVITY FACTOR
      INCLUDE 'DATA$'
      N=2
      RLAT=2*(RLAT/57.29578)
      G(N)=(0.0026373*(COS(RLAT)))+(0.0000059*(COS(RLAT))**2)
      RETURN
      END
```

```
      SUBROUTINE COMPRSR(IH1,IH2,IM1,IM2,RAWINDAY,RAWINMONTH,RAWINYEAR,
     * ROCKTIME)
C
      INTEGER RAWINTIME,RAWINDAY,RAWINMONTH,RAWINYEAR
      REAL HEIGHT(41),RSTMP(41),TMPDIF(41),REFS(41)
      INCLUDE 'DATA5'
C
      OPEN 4,'DK1:CONTROL.DT',AT='C',LEN=10
      READ(4)(X,I=1,7),I,RAWINDAY,RAWINMONTH,RAWINYEAR,X,
     *      RAWINTIME,(X,I=1,17)
   95 CLOSE 4
      DO 96 I=1,41
   96 HEIGHT(I)=0.0
      JJ=1
      KNTR=1
      JJ=0
      DO 100 I=1,1000
      READ(IOU1,END=101)Z,H2,VX,VY,UX2,UY2,T,UT2
  100 CONTINUE
  101 NIX=I-1
      BACKSPACE IOU1
      BACKSPACE IOU1
      READ(IOU1)Z,H2,VX,VY,UX2,UY2,T,UT2
      BACKSPACE IOU1
      BACKSPACE IOU1
      READ(IOU1)Z1,H2,VX,VY,UX2,UY2,T1,UT2
      NIX=NIX-1
      HS=AINT(Z-AMOD(Z,1000.0))
  102 IF(Z.LT.HS)GOTO 104
      HS=HS+250.
      GOTO 102
  104 HBL=HS
      WRITE(IOU3,4)
    4 FORMAT(1H1,11X,'* * *  TEMPERATURE COMPARISON * * *'//
     * ' ROCKETSONDE',24X,'RAWINSONDE')
      WRITE(IOU3,5)(IDTYPE(I),I=1,3),ISONDE,SONDE
    5 FORMAT(' TEST NBR ',3A2/' ROCKET SUPER LOKI DATASONDE FWN-',
     * A2,A1)
      IH1=RAWINTIME/1000
      IH2=MOD(RAWINTIME,1000)/100
      IM1=MOD(RAWINTIME,100)/10
      IM2=MOD(RAWINTIME,10)
      WRITE(IOU3,6)(STATIONID(I),I=1,15),IH1,IH2,IM1,IM2,RAWINDAY,
     * MNTAB(RAWINMONTH),RAWINYEAR
    6 FORMAT(1X,15A2,5X,4I1,'Z  ',12,1X,A4,I4)
      WRITE(IOU3,7)ROCKTIME,IDAY,MONTH,IYR
    7 FORMAT(1X,A4,'Z',I4,1X,A4,I4//)
      WRITE(IOU3,8)
    8 FORMAT(' ALTITUDE',8X,'TEMPERATURE  DEGREES C'/
     * '  METERS    ROCKET    RAWINSONDE   DIFFERENCE'/)
      I=NIX
      OPEN 5,'DK1:[ARDATA]A',AT='R',LEN=56
  107 READ(5,END=98)HGT1,X,X,TMP1,X,REF1,X,X,X,X,X,X,X,X
      IF(HGT1.NE.HS)GOTO 107
  109 IF(HS.GE.Z.AND.HS.LT.Z1)GOTO 111
      Z=Z1
```

```
            I=II
            BACKSPACE 1
            BACKSPACE 1
            READ(1)Z1,HL,VX,V1,UX2,UV2,T1,UT2
            I=I-1
            IF(I.EQ.0)GOTO 98
            GOTO 109
  111       IF(I.NE.999..AND.I.NE.999.)GOTO 113
            A=999.9
            DIFF=99.9
            GOTO 114
  113       RAT=(Z-HS)/(Z-Z1)
            A=T1-RAT*(T-T1)-273.15
            DIFF=A-TMP1
            WRITE(10U3,9)HS,A,TMP1,DIFF
    9       FORMAT(1X,17,F10.2,F11.2,F12.1)
  114       IF(HS.LT.20000.0)GOTO 116
            J=JJ1
            HEIGHT(J)=HS
            RSTMP(J)=A
            TMPDIF(J)=DIFF
            RPRS(J)=RPR1
            KNTR=J
  116       HS=HS+250.
            IF(HS.LT.30000.0)GOTO 107
   98       REWIND 1
            CLOSE 5
  208       IF(HEIGHT(1).GT.30000.)GOTO 210
            DO 201 JJ=1,KNTR
            IF(ABS(TMPDIF(JJ)).LT.2.50)GOTO 205
  201       CONTINUE
  210       HBL=HEIGHT(1)
            PBL=999.9
            TBL=999.9
            RETURN
    C       SELECT BASELINE
  205       HBL=HEIGHT(JJ)
            PBL=RPRS(JJ)
            TBL=RSTMP(JJ)+273.15
            RETURN
            END
```

```
      SUBROUTINE COMPRSR(IH1,IH2,IM1,IM2,RAWINDAY,RAWINMONTH,RAWINYEAR,
     *  RAWINTIME)
C
      INTEGER RAWINTIME,RAWINDAY,RAWINMONTH,RAWINYEAR
      REAL HEIGHT(41),RSTMP(41),TMPDIF(41),RPRS(41)
      INCLUDE "DATAS"
      DATA HEIGHT,TMPDIF/82*0.0/
C
      OPEN 4,"DP1:CONTROLFIL",ATT="L",LEN=110
      READ(4)(X,I=1,7),I,RAWINDAY,RAWINMONTH,RAWINYEAR,X,
     *       RAWINTIME,(X,I=1,17)
95    CLOSE 4
C---------
      WRITE(IOU3,4)
4     FORMAT(1H1,11X,"* * *  TEMPERATURE COMPARISON * * *"//
     *" ROCKETSONDE",24X,"RAWINSONDE")
      WRITE(IOU3,5)(IDTYPE(I),I=1,3),ISONDE,SONDE
5     FORMAT(" TEST NBR ",3A2/" ROCKET SUPER LOKI DATASONDE PWN-",
     *A2,A1)
      IH1=RAWINTIME/1000
      IH2=MOD(RAWINTIME,1000)/100
      IM1=MOD(RAWINTIME,100)/10
      IM2=MOD(RAWINTIME,10)
      WRITE(IOU3,6)(STATIONID(I),I=1,15),IH1,IH2,IM1,IM2,RAWINDAY,
     *MNTAB(RAWINMONTH),RAWINYEAR
6     FORMAT(1X,15A2,5X,4I1,"Z   ",I2,1X,A4,I4)
      WRITE(IOU3,7)ROCKTIME,IDAY,MONTH,IYR
7     FORMAT(1X,A4,"Z",I4,1X,A4,I4//)
      WRITE(IOU3,8)
8     FORMAT(" ALTITUDE",8X,"TEMPERATURE  DEGREES C"/
     *"  METERS    ROCKET   RAWINSONDE   DIFFERENCE"/)
C---------
      OPEN 5,"DP1:TABDATA",ATT="R",LEN=56
      DO 100 I=1,41
105   READ(5,END=110)HEIGHT(I),X,X,RSTMP(I),X,RPRS(I),X,X,X,X,X,X,X,X
      IF (HEIGHT(I).LT.20000.) GOTO 105
100   CONTINUE
C----------
110   CLOSE 5
      IF (I.LT.10) GOTO 999
      DO 120 I=1,1000
120   READ(IOU1,END=130)X,X,X,X,X,X,X,X
130   KIX=I-2
      BACKSPACE IOU1
      BACKSPACE IOU1
      READ(IOU1)Z,X,X,X,X,X,T,X
      J=1
      DO 140 I=1,KIX
      BACKSPACE IOU1
      BACKSPACE IOU1
      READ(IOU1)Z1,X,X,X,X,X,T1,X
      IF(T.GE.999..OR.T1.GE.999.) GOTO 131
132   IF(Z.GT.HEIGHT(J).OR.HEIGHT(J).GE.Z1)GOTO 133
      RAT=(Z-HEIGHT(J))/(Z-Z1)
      A=T-RAT*(T-T1)-273.15
```

```
      TMPDIF(J)=A-RSTMP(J)
      WRITE(IOU3,9)HEIGHT(J),A,RSTMP(J),TMPDIF(J)
9     FORMAT(1X,I7,F10.2,F11.2,F12.1)
133   IF(HEIGHT(J).GE.Z1)GOTO 131
      J=J+1
      IF(J.GT.41.OR.HEIGHT(J).EQ.0.0)GOTO 150
      GOTO 132
131   Z=Z1
      I=I1
140   CONTINUE
C-----
150   K=1
      KK=9
155   A=0.0
      DO 160 I=K,KK
      IF(HEIGHT(I).EQ.0.0)GOTO 999
160   A=A+ABS(TMPDIF(I))
      A=A/9.
      IF(A.GT.2.5)GOTO 170
      HBL=HEIGHT(K)
      TBL=RSTMP(K)+273.15
      PBL=RPRS(K)
      REWIND IOU1
      RETURN
170   K=K+1
      KK=KK+1
      IF(KK.LE.41)GOTO 155
999   HBL=HEIGHT(1)
      PBL=TBL=999.9
      REWIND IOU1
      RETURN
      END
```

```
      SUBROUTINE CHKOUT(ROCKTIME)
C     DOES T,A,E,R, CHECKOUT ON PRINTER
C     AND WRITES T,TMP,X,Y, AND Z ON DRIVE 1 IN BINARY
      INTEGER TODAY(3),CLOCK(3)
      INCLUDE 'DATAS'
      COMMON/XYZ/R,AL,EL
    3 FORMAT('    TIME SEC    AZIMUTH   ELEVATION     RNG MTS      HGT MTS',
     *  '   HR MIN SEC',8X,'TIME      AZIMUTH   ELEVATION',/X,'RANGE     AL',
     *  'TITUDE'/)
      IF(IOU3.NE.3)GOTO 110
      CALL DATE(TODAY,IER)
      CALL TIME(CLOCK,IER)
      WRITE(IOU3,10)IDTYPE,STATIONID,TODAY(2),MNTAB(TODAY(1)),TODAY(3),CLOCK
   10 FORMAT('TEST NUMBER: ',3A2,' ASCENT NUMBER: ',2A2,9X,15A2,9X,
     *  'RUN DATE ',I2,1X,A4,I4,'  RUN TIME ',I2,':',I2,':',I2)
  110 CONTINUE
      IF(IOU3.NE.3)GOTO 120
      WRITE(IOU3,9)ROCKTIME,IDAY,MONTH,IYR,ISONDE,SONDE
    9 FORMAT(1X,A4,'Z  ',I2,1X,A4,I4,80X,'SUPER LOKI DATASONDE PWN-'
     *  A2,A1/)
      WRITE(IOU3,11)
   11 FORMAT(26X,'MSS TRACKING DATA',51X,'DIFFERENCE/MINUTE')
      WRITE(IOU3,3)
  120 CONTINUE
      DT=0.0
      DA=0.0
      DE=0.0
      DR=0.0
      DO 112 I=1,1000
      DZ=0.0
      READ(IOU2,END=113)T,TMP,A,E,R
      AL=A/57.29578
      EL=E/57.29578
C
      CALL COMPXYZ
C
      IF(Z.LT.19000.)GOTO 113
      IF(I.EQ.1)GOTO 111
C     COMPUTE DELTAS
      DT=T-T1
      DX=60./DT
      DZ=(Z-Z1)*DX
      DE=(E-E1)*DX
      DA=(A-A1)*DX
      DR=(R-R1)*DX
  111 IH1=T/3600.0
      HOLD=AMOD(T,3600.0)
      IM1=HOLD/60.0
      IS=AMOD(HOLD,60.0)
      IF(IOU3.EQ.3)WRITE(IOU3,7)T,A,E,R,Z,IH1,IM1,IS,DT,DA,DE,DR,DZ
    7 FORMAT(1H ,F10.2,2F10.3,2F12.2,3I4,5F12.2)
C     PROCESS VALUES
      T1=T
      A1=A
      E1=E
      R1=R

13:58:59  29 MAR, 1984   ROCKET REDUCTION PASS #1 - CHECKOUT          PAGE
```

```
      ZL=Z
    6 WRITE (IOUT,1ENF)X,Y,AND Z ON TAPE
      WRITE(IOUT)ITMP,X,Y,Z
  222 CONTINUE
  113 CLOSE IOUT
      CLOSE IOUT2
      OPEN IOUT,'TAPE1',LEN=20
      OPEN IOUT2,'TAPE2',LEN=24
      RETURN
      END
```

```
      FUNCTION IGETC(CHARAY,INDEX)
      INTEGER CHARAY(1)
      IPOINT=(INDEX+1)/2
      IGETC=IAND(CHARAY(IPOINT),'FF'X)
      IF(MOD(INDEX,2).EQ.1)RETURN
      IGETC=NOT(IAND(CHARAY(IPOINT),'FF'X))
      RETURN
      END
```

```
      SUBROUTINE PUTC(CHARAY,INDEX,IVALUE)
      INTEGER CHARAY(1)
      IPOINT=(INDEX+1)/2
      IF (MOD(INDEX,2).EQ.0)GOTO 1
      CHARAY(IPOINT)=MOD(IABS(CHARAY(IPOINT)),256)+IVALUE*256
      RETURN
    1 CHARAY(IPOINT)=(CHARAY(IPOINT)/256)*256+IVALUE
      RETURN
      END
```

```
      FUNCTION WDIR(XX,YY)
      IF(XX.NE.0.0)GOTO 100
      IF(YY.GE.0.0)WDIR=360.0
      IF(YY.LT.0.0)WDIR=180.0
      RETURN
  100 D=ATAN(YY/XX)*57.2957
      WDIR=270.0-D
      IF(XX.GT.0.0)WDIR=90.0-D
      IF(WDIR.LT.0.5)WDIR=360.0
      RETURN
      END
```

```
FUNCTION WSPD(X,Y)
WSPD=(X**2+Y**2)**0.5
IF(X.EQ.999.9.OR.Y.EQ.999.9)WSPD=999.
RETURN
END
```

14: 04:25 29 MAR, 1984 RELIEF REDUCTION PASS #1 - VALUE PAGE

```
      REAL ATC(51),BTC(51),CTC(51),DTC(51),CTD(51)
      DATA ATC/
     * 2*4.65E-4,2*4.64E-4,4.63E-4,4.62E-4,4.61E-4,4.59E-4,4.57E-4,
     * 4.55E-4,4.52E-4,4.5E-4,4.48E-4,4.46E-4,4.44E-4,4.43E-4,4.42E-4,
     * 4.41E-4,2*4.4E-4,4*4.39E-4,4.4E-4,2*4.41E-4,2*4.42E-4,2*4.43E-4,
     * 2*4.44E-4,2*4.45E-4,2*4.46E-4,2*4.47E-4,4.48E-4,2*4.49E-4,
     * 2*4.5E-4,4.51E-4,4*4.52E-4,4.53E-4,4.54E-4,4.55E-4/
      DATA BTC/12.7,
     * 10.6,8.92,7.7,6.69,5.93,5.27,4.72,4.27,3.84,3.51,3.23,2.95,
     * 2.72,2.51,2.342,2.184,2.053,1.935,1.828,1.728,1.627,1.545,
     * 1.469,1.393,1.33,1.271,1.212,1.16,1.111,1.065,1.019,.978,.94,
     * .903,.868,.837,.804,.776,.749,.724,.7,.677,.656,.635,.616,.597,
     * .58,.565,.55,.535/
      DATA CTC/23.2,18.4,15.0,12.5,
     * 10.4,8.94,7.7,6.69,5.87,5.13,4.57,4.1,3.66,3.29,2.98,2.73,2.51,
     * 2.33,2.17,2.03,1.9,1.77,1.67,1.57,1.48,1.4,1.33,1.26,1.2,1.14,
     * 1.09,1.03,.986,.943,.897,.858,.822,.785,.753,.722,.694,.666,.64,
     * .615,.593,.572,.551,.533,.518,.502,.487/
      DATA CTD/7.56,6.04,4.93,4.13,3.48,3.,2.59,2.26,2.,1.75,1.57,1.41,
     * 1.27,1.15,1.04,.956,.88,.82,.766,.718,.673,.629,.592,.559,.528,
     * .5,.476,.452,.43,.41,.392,.372,.355,.341,.323,.311,.298,.285,
     * .274,.263,.253,.243,.235,.225,.218,.21,.203,.197,.191,.185,.18/
      DATA DTC/18.51E-10,14.63E-10,
     * 11.83E-10,9.6E-10,8.18E-10,6.98E-10,5.98E-10,5.17E-10,4.53E-10,
     * 3.93E-10,3.49E-10,3.12E-10,2.78E-10,2.49E-10,2.24E-10,2.05E-10,
     * 1.87E-10,1.74E-10,1.62E-10,1.51E-10,1.41E-10,1.31E-10,1.23E-10,
     * 1.16E-10,1.09E-10,1.03E-10,9.76E-11,9.24E-11,8.79E-11,8.35E-11,
     * 7.95E-11,7.53E-11,7.18E-11,6.85E-11,6.52E-11,6.22E-11,5.96E-11,
     * 5.68E-11,5.44E-11,5.22E-11,5.E-11,4.79E-11,4.6E-11,4.42E-11,
     * 4.25E-11,4.09E-11,3.94E-11,3.81E-11,3.69E-11,3.58E-11,3.47E-11/
C
      DELETL "ROCKETABLE.PM"
      OPEN 1,"ROCKETABLE.PM",ATT="L",LEN=208
      WRITE(1)(ATC(I),BTC(I),CTC(I),DTC(I),I=1,51)
      WRITE(1)(CTD(I),I=1,51)
      CLOSE 1
      STOP
      END
```

PASS 2

1.0 Module Description

1.1 Main Routine

Initializes the various control and conversion constants, and controls the flow of data through the subroutines.

1.2 Subroutine ETFORM

Formats data for entry into the high altitude data formatting routine to develop data for archiving and publication.

1.3 Subroutine CODIT

Final formatting and output routine for data developed in Subroutine ETFORM.

1.4 Subroutine RDRAWIN

Reads co-rawinsonde data for input into the archiving and publication formatting program.

1.5 Subroutine ROCOB

Encodes all rocketsonde parameters into the international ROCOB code and stores data for later transmission.

1.6 Subroutine MANDL

Mandatory data level inserter called by ROCOB to place data levels into the proper place in the code.

1.7 Subroutine LEFTZERO

Inserts leading zeros on integer numbers when required for output.

1.8 Subroutine TSIGN

Converts a decimal integer to a positive or negative character.

1.9 Function VALUE

Interpolates for a value or sets missing data to nines.

1.10 Function WDIR

Computes wind direction in meteorological polar coordinate system.

1.11 Function WSPD

Computes wind velocity using velocity components as input data.

2.0 MATHEMATICAL DESCRIPTION

2.1 Main Routine

None

2.2 Subroutine ETFORM

2.2.1 Conversion of Baseline Height to Nearest Geopotential Decameter

$$H = \{[GRAT \cdot (Re \cdot Z)/(Re + Z)] + 5\}/10$$

where H = baseline height, geopotential decameters

GRAT = ratio of local acceleration of gravity to acceleration of gravity at 45 degrees latitude

Re = mean radius of the Earth, meters

Z = geometric height, meters

5 = rounding factor

10 = converts meters to decameters

2.2.2 Computation of Baseline Pressure

$$P = (10^{PL} \cdot 100) + 0.5$$

where P = baseline pressure

PL = log of baseline pressure

100 = formats pressure for output

0.5 = rounding factor

2.2.3 Computation of an Interpolation Ratio for Significant Level Checking

$$K = (H - HB)/(HA - HB)$$

where K = interpolation ratio

H = height of level being checked

HA = height, upper level

HB = height, lower level

2.2.4 Interpolation for Significant Level Test Temperature

$$ST = K \cdot (TA - TB) + TB$$

where ST = significant level test temperature, degrees Kelvin

K = interpolation ratio

TA = temperature, upper level, degrees Kelvin

TB = temperature, lower level, degrees Kelvin

2.2.5 Computation of an Interpolation Ratio for Obtaining Even Decameter Data

$$K = (H1 - HB)/(HA - HB)$$

where K = interpolation ratio

H1 = output height, meters

HA = height, lower level, meters

HB = height, upper level, meters

2.2.6 Conversion of Output Height to Decameters

$$H = H1/10$$

where H = height, decameters

H1 = height, meters

10 = conversion factor

2.2.7 Interpolation for Output Parameters

$$X = K \cdot (XA - XB) + XB$$

$$Y = K \cdot (YA - YB) + YB$$

$$T = K \cdot (TA - TB) + TB$$

$$P = K \cdot (PA - PB) + PB$$

$$F = K \cdot (FA - FB) + FB$$

$$UX = K \cdot (UXA - UXB) + UXB$$

$$UY = K \cdot (UYA - UYB) + UYB$$

where X = output east-west position component

XA = lower level east-west position component

XB = upper level east-west position component

Y = output north-south position component

YA = lower level north-south position component

YB = upper level north-south position component

T = output temperature

TA = lower level temperature

TB = upper level temperature

P = output log of pressure

PA = lower level log of pressure

PB = upper level log of pressure

F = output fall rate

FA = lower level fall rate

FB = upper level fall rate

UX = output uncorrected east-west position component

UXA = lower level uncorrected east-west position component

UXB = upper level uncorrected east-west position component

UY = output uncorrected north-south position component

UYA = lower level uncorrected north-south position component

UYB = upper level uncorrected north-south position component

K = interpolation ratio

2.2.8 Computation of an Interpolation Ratio for Obtaining the Constant Pressure Output Data

$$K = (P - PB)/(PA - PB)$$

where K = interpolation ratio

P = log of pressure, mandatory output levels

PA = log of pressure, lower level

PB = log of pressure, upper level

2.2.9 Interpolation for Height, East-West Position Component, North-South Position Component, Uncorrected East-West Position Component, Uncorrected North-South Position Component, Temperature, Uncorrected Temperature, and Fall Rate

$$X = K \cdot (XA - XB) + XB$$

$$Y = K \cdot (YA - YB) + YB$$

$$T = K \cdot (TA - TB) + TB$$

$$P = K \cdot (PA - PB) + PB$$

$$F = K \cdot (FA - FB) + FB$$

$$UX = K \cdot (UXA - UXB) + UXB$$

$$UY = K \cdot (UYA - UYB) + UYB$$

where

X = output east-west position component

XA = lower level east-west position component

XB = upper level east-west position component

Y = output north-south position component

YA = lower level north-south position component

YB = upper level north-south position component

T = output temperature

TA = lower level temperature

TB = upper level temperature

P = output log of pressure

PA = lower level log of pressure

PB = upper level log of pressure

F = output fall rate

FA = lower level fall rate

FB = upper level fall rate

UX = output uncorrected east-west position component

UXA = lower level uncorrected east-west position component

UXB = upper level uncorrected east-west position component

UY = output uncorrected north-south position component

UYA = lower level uncorrected north-south position component

UYB = upper level uncorrected north-south position component

K = interpolation ratio

2.3 Subroutine CODIT

2.3.1 Computation of Velocity of Sound

$$VS = 331.45 \cdot (T/273.15)^{1/2}$$

where VS = velocity of sound, meters per second

T = temperature, degrees Kelvin

331.45 = speed of sound at zero degree Celsius, meters/second

2.3.2 Computation of Barometric Pressure

$$P = 10^{PL}$$

where P = barometric pressure (millibars)

PL = log of barometric pressure

2.3.3 Computation of Density

$$\varrho = 348.38 \cdot (P/T)$$

where ϱ = density, grams per cubic meter

P = barometric pressure, millibars

T = temperature, degrees Kelvin

348.38 = gas constant for dry air and conversion factors, with pressure in millibars and density in grams/cubic meter

2.4 Subroutine RDRAWIN

None

2.5 Subroutine ROCOB

None

2.6 Subroutine MANDL

None

2.7 Subroutine LEFTZERO

None

2.8 Subroutine TSIGN

None

2.9 Function VALUE

None

2.10 Function WDIR

2.10.1 Computation of Wind Direction

$$D = \tan^{-1}(Y/X) \cdot 57.29578$$

If $X < 0$,

then $WDIR = 270 - D$

If $X > 0$,

then $WDIR = 90 - D$

If $X = 0$ and $Y \geq 0$

then $WDIR = 360$

If $X = 0$ and $Y < 0$

then $WDIR = 180$

where WDIR = wind direction, meteorological polar coordinates

D = wind direction, Cartesian coordinates

X = east-west velocity vector

Y = north-south velocity vector

57.29578 = degrees in a radian

2.11 Function WSPD

2.11.1 Computation of Windspeed

$$WSPD = \sqrt{X^2 + Y^2}$$

where WSPD = windspeed

X = east-west velocity vector

Y = north-south velocity vector

3.0 INPUT

Input to Pass 2 is from four sources. First is the scratch file output from Pass 1, second is for the constant altitude data output from Pass 1, third is the options that are input in conversational mode, and fourth is the co-rawinsonde data.

The scratch file is as follows:

Words	Contents
1—2	Altitude, meters
3—4	East-west velocity component, meters/second
5—6	North-south velocity component, meters/second
7—8	Uncorrected east-west velocity component, meters/second
9—10	Uncorrected north-south velocity component, meters/second
11—12	Temperature (degrees K)
13—14	Uncorrected temperature (degrees K)
15—16	Barometric pressure, millibars
17—18	Fall rate, meters/second

Constant Altitude Data

Height	Geometric feet or meters at standard intervals of 1 km, 250 meters, and 1,000 feet
Wind Direction	In degrees from true north. Missing data is shown as 999
Windspeed	In knots or meters/second; calm is 000 and missing is 999
Temperature	In degrees Kelvin
Temperature Correction	In degrees Kelvin
Atmospheric Pressure	Millibars
Atmospheric Density	Grams/cubic meter
Fall Rate	In feet/second or meters/second (determined by height units)
Speed of Sound	In knots or meters/second (determined by height units)
Wind Shear	Seconds^{-1}

Sample Options Dialogue

Prompt	Operator Input
Output to console or printer (CNS/PRT)	PRT

Co-Rawinsonde Data Format

Control File

Word	Contents
1	Units switch (feet/meters)
2	Winds in feet/second switch
3	Interpolation switch
4	Output device indicator
5	Optical index of refraction units switch
6	Wind shear in knots switch
7—8	Surface wind x component
9—10	Surface wind y component
11—12	Surface wind direction
13—14	Surface windspeed
15	Station number
16	Day
17	Month
18	Year
19—20	Altitude increment (feet)
21	Release time
22—23	Tropopause wind direction (degrees from true north)
24—25	Tropopause time (seconds)
26—27	Tropopause geopotential height (feet)
28—29	Tropopause dewpoint (degrees C)
30—31	Tropopause geometric height (feet)
32—33	Tropopause refractive index (optical/N)
34—35	Tropopause pressure (millibars)
36—37	Tropopause temperature (degrees C)
38—39	Tropopause relative humidity (percent)
40—41	Tropopause wind speed (knots/feet/second/meters/second)
42—45	Station latitude (double precision) (degrees)
46—47	Termination height (geometric feet)
48—49	Termination pressure (millibars)
50—54	Flight identification
55	Sonde type

Significant File

Words	Contents
1—2	Altitude (feet, geometric)
3	Wind direction (degrees)
4	Windspeed (meters/second)
5—6	Temperature (degrees C)
7—8	Dewpoint (degrees C)
9—10	Pressure (millibars)
11—12	Refractive index (N units)
13—14	Relative humidity (percent)

Mandatory File

Words	Contents
1—2	Altitude (feet, geopotential)
3	Wind direction (degrees)
4	Windspeed (meters/second)
5—6	Temperature (degrees C)
7—8	Dewpoint (degrees C)
9—10	Pressure (millibars)
11—12	Relative humidity (percent)

Tabulation File

Words	Contents
1—2	Altitude (feet, geometric)
3—4	Wind direction (degrees)
5—6	Windspeed (meters/second)
7—8	Temperature (degrees C)
9—10	Dewpoint (degrees C)
11—12	Pressure (millibars)
13—14	Relative humidity (percent)
15—16	Absolute humidity (grams/cubic meter)
17—18	Density (grams/cubic meter)
19—20	Index of refraction (N)
21—22	Velocity of sound (knots)
23—24	Shear velocity ($seconds^{-1}$)
25—26	Vapor pressure (millibars)
27—28	Precipitable water (millimeters)

4.0 OUTPUT

Output consists of the HAMDATA file and the ROCOB file. The first part of the HAMDATA file is as follows:

Words	Contents
1	Height, geometric decameters for the significant and mandatory data levels, geopotential decameters for the constant pressure levels
2—4	Wind direction (degrees from true north)
5	Windspeed (meters/second)
6	Uncorrected north-south velocity component (meters/second)
7	Uncorrected east-west velocity component (meters/second)
8	North-south velocity component (meters/second)
9	East-west velocity component (meters/second)
10	Fall rate (meters/second)
11	Temperature (degrees C)
12	Temperature (degrees C)
13—15	Barometric pressure (millibars)
16—18	Density (grams/cubic meter)
19	Velocity of sound (meters/second)

The second part of the HAMDATA file consists of the data in the mandatory and significant parts of the co-rawinsonde data and is as follows:

Mandatory File

Words	Contents
1—2	Altitude (feet, geopotential)
3	Wind direction (degrees)
4	Windspeed (knots)
5—6	Temperature (degrees C)
7—8	Dewpoint (degrees C)
9—10	Pressure (millibars)
11—12	Relative humidity (percent)

Significant File

Words	Contents
1-2	Altitude (feet)
3	Wind direction (degrees)
4	Windspeed (meters/second)
5—6	Temperature (degrees C)
7—8	Dewpoint (degrees C)
9—10	Pressure (millibars)
11—12	Refractive index (N units)

The ROCOB file is described in *Federal Meteorological Handbook 10* as follows:

ROCKETSONDE MESSAGE CODE

SECTION A - INTRODUCTION

1.1 A ROCOB report or a bulletin of ROCOB reports from a land rocketsonde station is identified by $M_iM_iM_jM_j$ = *RRXX. The identifier for ROCOB SHIP* is SSXX. (The name ROCOB or ROCOB SHIP shall not be included in the report.)

1.2 The code form is divided into three sections as follows:

SECTION 1 - Identification data

SECTION 2 - Data for specified geometric altitudes

SECTION 3 - Data for isobaric surfaces (optional)
(Sections 2 and 3 cannot be transmitted as a separate report.)

SECTION B - MESSAGE FORMAT

1.1 FM39.F ROCOB — Upper-level temperature and wind (possibly air density) report from land rocketsonde station.

SECTION 1	$M_iM_iM_jM_j$	$YYCG_g$	IIiii $a_1e_T\varepsilon_Tc_Tm_r$ $r_me_we_wc_wm_r$
SECTION 2	HHZ_TTT	ddfff	$(9d_pP_1P_1P_1)$
	HHZ_TTT	ddfff	$(9d_pP_1P_1P_1)$
	.....	.....	.....

SECTION 3	$11Z_TT_1T_1$	$P_1P_1h_1h_1h_1$	ddfff
	.....	.....	.....
	$\mathbf{f}1Z_TT_nT_n$	$P_nP_nh_nh_nh_n$	$d_nd_nf_nf_nf_n$
	$22Z_TT_1T_1$	$P_1P_1h_1h_1h_1$	$d_1d_1f_1f_1f_1$
	.....	.....	.....
	$22Z_TT_nT_n$	$P_nP_nh_nh_nh_n$	$d_nd_nf_nf_nf_n$
	33...	.....	.....
	44...	.....	.....
	etc.		

SECTION C - DEFINITIONS

1.1 Symbolic form table for land stations

$M_iM_iM_iM_i$ = RRXX - ROCOB report from a land station

YY = Day of the month (GMT) on which the observation was taken.

GG_g = Time of launch in hours and nearest tens of minutes GMT

MM = Month of year (01 = Jan, 12 = Dec. etc.)

JJJ = Year (980 = 1980, 981 = 1981, etc.)

IIiii = International Index Number of the observing station (II = Block Nbr and iii = Station Nbr, both given in H.O. Pub. No. 119.)

a_1 = Reason for no report and ground equipment employed (Code Table 1).

e_Te_T = Type of thermodynamic sensing equipment (Code Table 2).

c_T = Thermodynamic correction technique (Code Table 3).

m_r = Method of reducing data in temperature or wind group (Code Table 4).

r_m = Type of rocket motor (Code Table 5).

e_we_w = Type of wind sensing equipment (Code Table 6).

e_w = Wind correction technique (Code Table 3).

HH = Altitude, in kilometers, of the level for which data are reported.

Z_T = Character of the temperature reported by TT (Code Table 7).

TT = Air temperature in whole degrees Celsius at the altitude given by HH. (For a temperature of -570, the coding is TT=57 and Z_T=5.) When temperature is missing, two solidi (//) are reported for TT.

dd = True direction, in tens of degrees, from which the wind is blowing at the altitude given by HH (Code Table 8). (See note below fff.)

fff = Windspeeds are preferred in meters/sec at the altitude given by HH. If windspeeds are given in knots, 50 will be added to YY.

NOTE: (1) When wind direction or speed are missing, use solidi for ddfff as appropriate.

(2) The thickness of the layer through which wind direction and speed are determined shall be 2 km for both mandatory and significant levels; i.e., 1 km on each side of the altitude reported.

9 = Indicator figure for the density group, $9d_pP_1P_1P_1$.

d_p = Decimal point locator. The number of places to the left of the third significant figure. The decimal point must be so placed as to obtain the actual density in g/m^3 by $P1^P_1P_1$.

NOTE: The third significant figure is always included in the value reported for symbol d_p.

EXAMPLE:

Assume 120 g/m^3, the group is coded 90120 (i.e., d_p = 0).

Assume 1.20 g/m^3, the group is coded 92120 (i.e., d_p = 2).

Assume 0.281 g/m^3, the group is coded 93281 (i.e., d_p = 3).

Assume 0.0788 g/m^3, the group is coded 94788 (i.e., d_p = 4).

$P_1 P_1 P_1$ = Density in gm/m^3 rounded to three significant figures at the altitude given by HH.

11 = Indicator figures - Standard isobaric surface data follow;

temperature ($Z_T T_1 T_1$ ... $Z_T T_n T_n$) is reported in the same manner as in section 2, pressure $P_1 P_1$ .... $P_n P_n$) is reported in <u>whole</u> millibars, altitude ($h_1 h_1 h_1$ ... $h_n h_n h_n$) is reported in geopotential hectometers.

22 = Indicator figures - Standard isobaric surface data follow; temperature is reported in the same manner as in Section 2, pressure is reported in <u>tenths</u> of a millibar and altitude reported in geopotential hectometers.

33 = Indicator used for reporting pressure in <u>hundredths</u> of a millibar and altitude in geopotential hectometers.

44 = Indicator used for reporting pressure in <u>thousandths</u> of a millibar and altitude in geopotential hectometers.

55 = Indicator used for reporting pressure in <u>ten-thousandths</u> of a millibar and altitude in geopotential hectometers.

66 = Indicator used for reporting pressure in <u>hundred-thousandths</u> of a millibar and altitude in geopotential kilometers.

$d_1 d_1$ = Wind direction in tens of degrees (Code Table 8) at the reported isobaric surfaces.

$f_1 f_1 f_1$ = Windspeed in meters/sec at the reported isobaric surfaces.

5.0 ALGORITHMS

5.1 Subroutine MANDL

Convert mandatory level pressure to whole number for output in Rocket code using

$$IPS = (10^{PL(J)} + F1)\ (10^{JS}/10)$$

where IPS = pressure at mandatory level encoded as a whole number

PL(J) = log of the pressure at the mandatory level being converted to a whole number

F1 = round off factor used to move decimal point; this factor is based on PL(J)

If PL(J) < 0, F1 = 0.05
< −1, F1 = 0.005
< −2, F1 = 0.0005
< −3, F1 = 0.00005
< −4, F1 = 0.000005

JS = intermediate factor based on the pressure level indicator J which is set by the number of levels processed

If J ≥ 31, JS = 6
< 31, JS = 5
< 26, JS = 4
< 21, JS = 3
< 16, JS = 2
< 10, JS = 1

5.2 Subroutine TSIGN

Convert the tenths value of temperature to a positive or negative character.

The temperature is read as a positive or negative real number. If it is positive the tenths value is converted to a character number. If it is negative the tenths value is converted to a coded character.

Numeric Value	Character
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7

Numeric Value	Character
8	8
9	9
−0	!
−1	J
−2	K
−3	L
−4	M
−5	N
−6	O
−7	P
−8	Q
−9	R

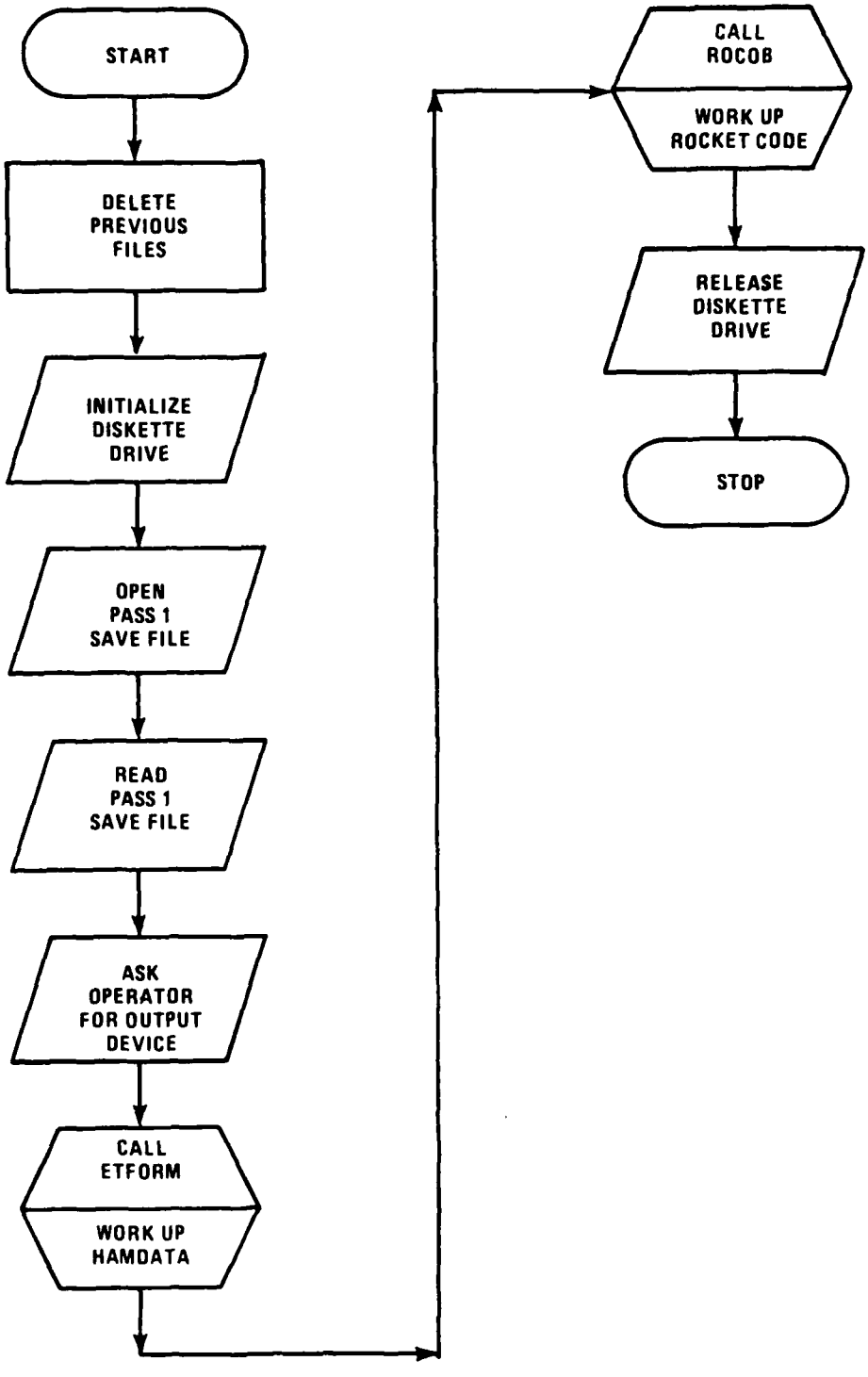
5.3 Subroutine LEFTZERO

Generate an array of single digit numbers from successive divisions of the input integer number. This routine is used to put leading zeros on integer numbers for output formatting.

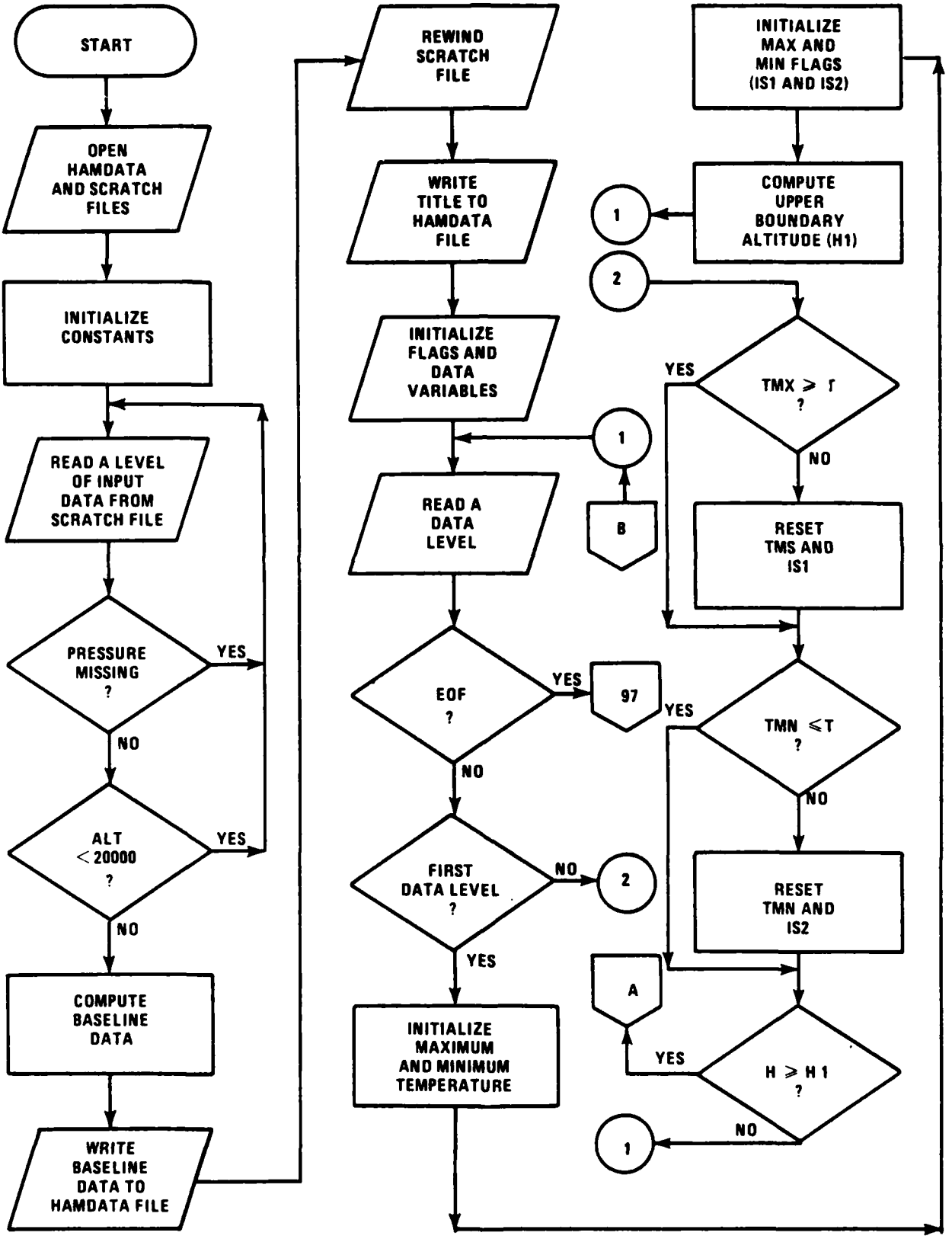
6.0 FLOWCHARTS

See the following pages.

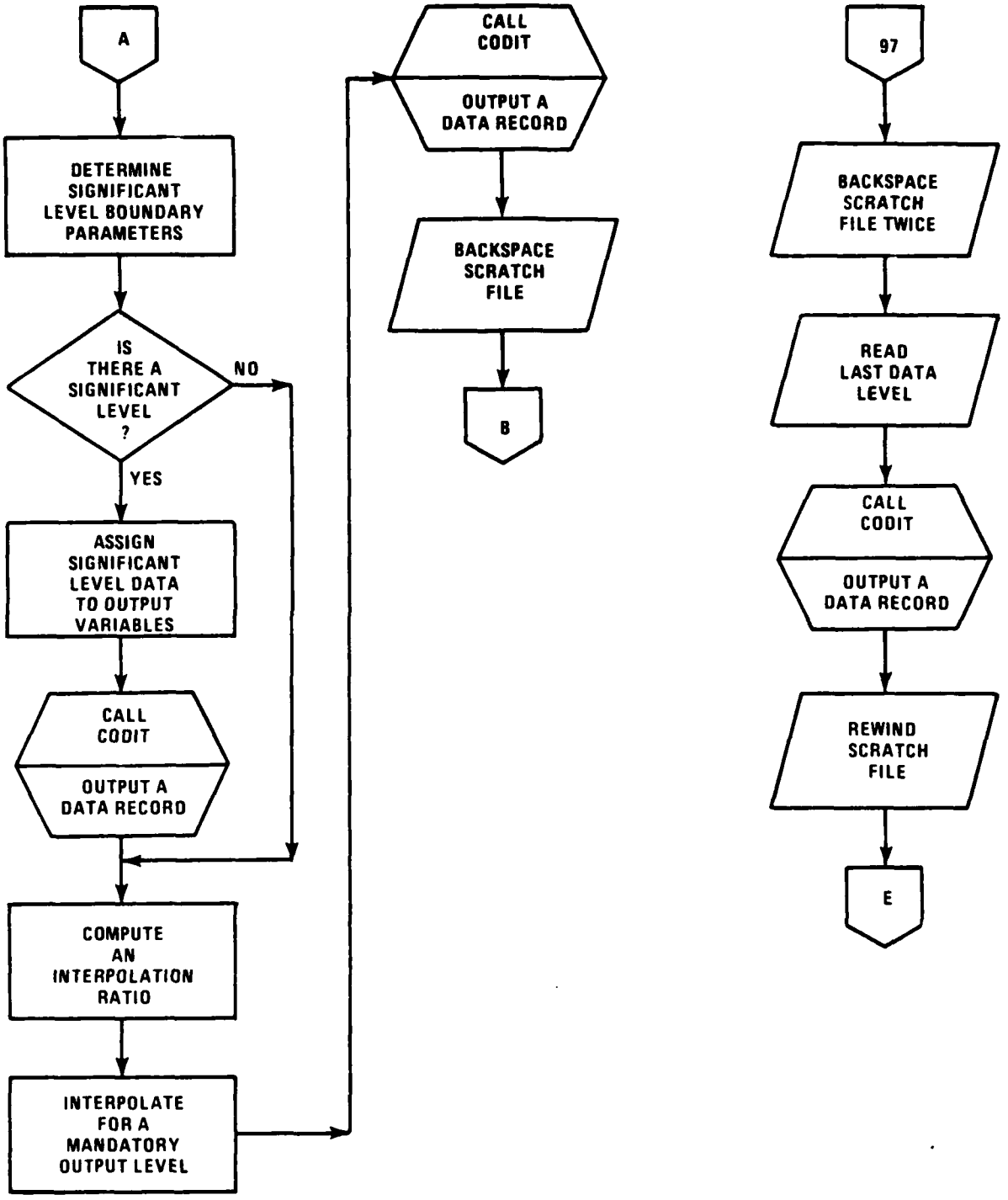
6.1 Main Routine – Pass 2



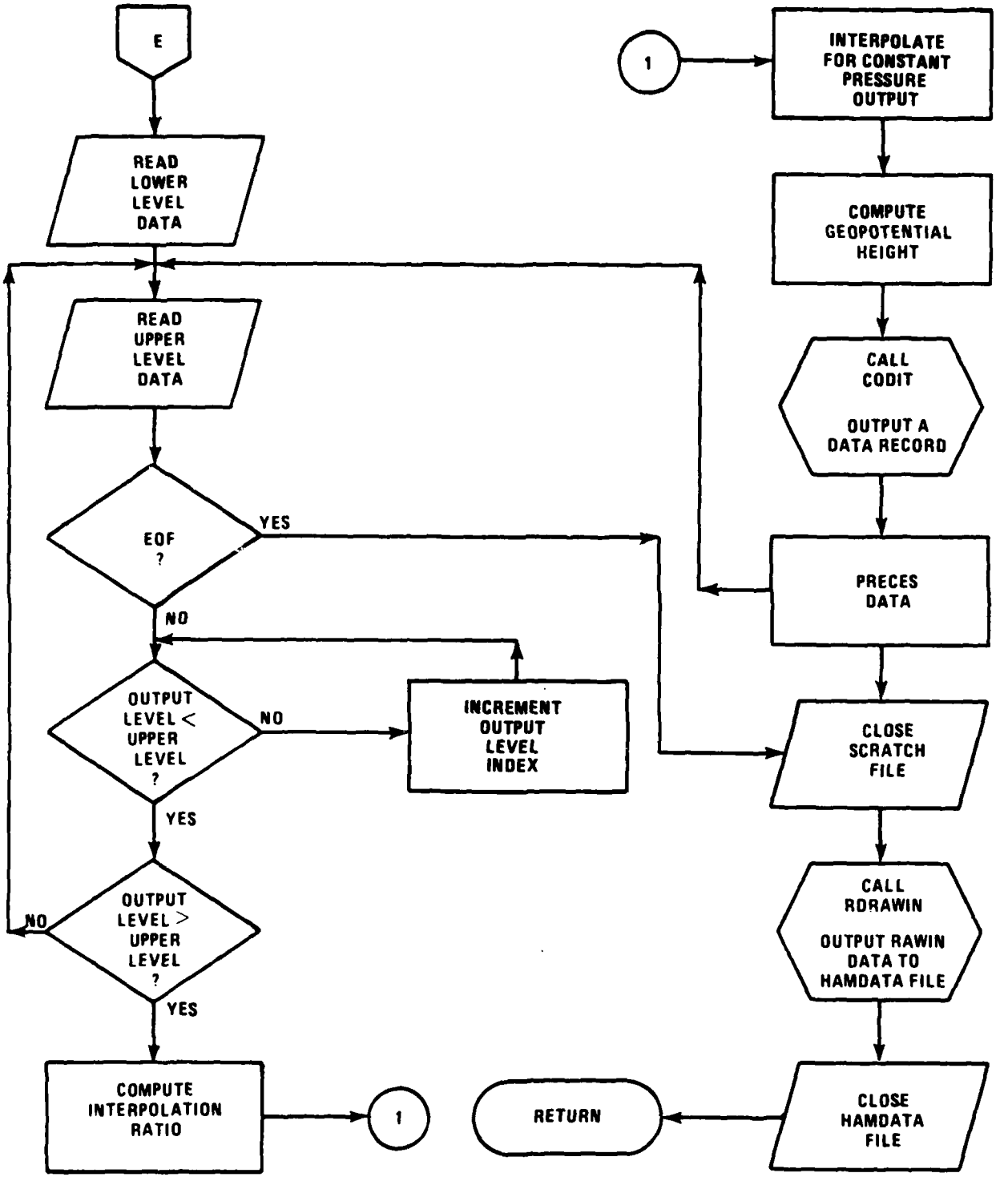
6.2.1 Subroutine ETFORM



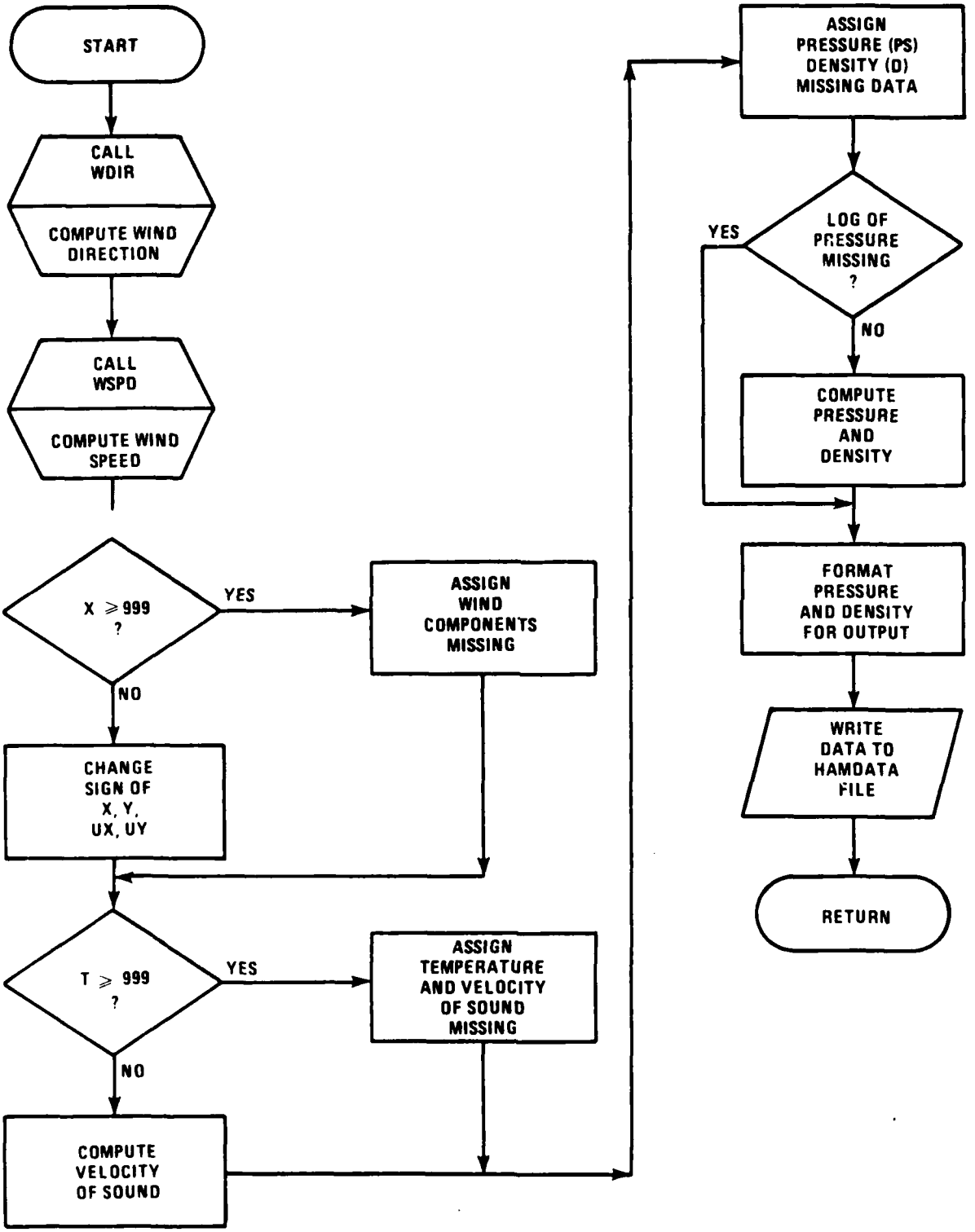
6.2.2 Subroutine ETFORM



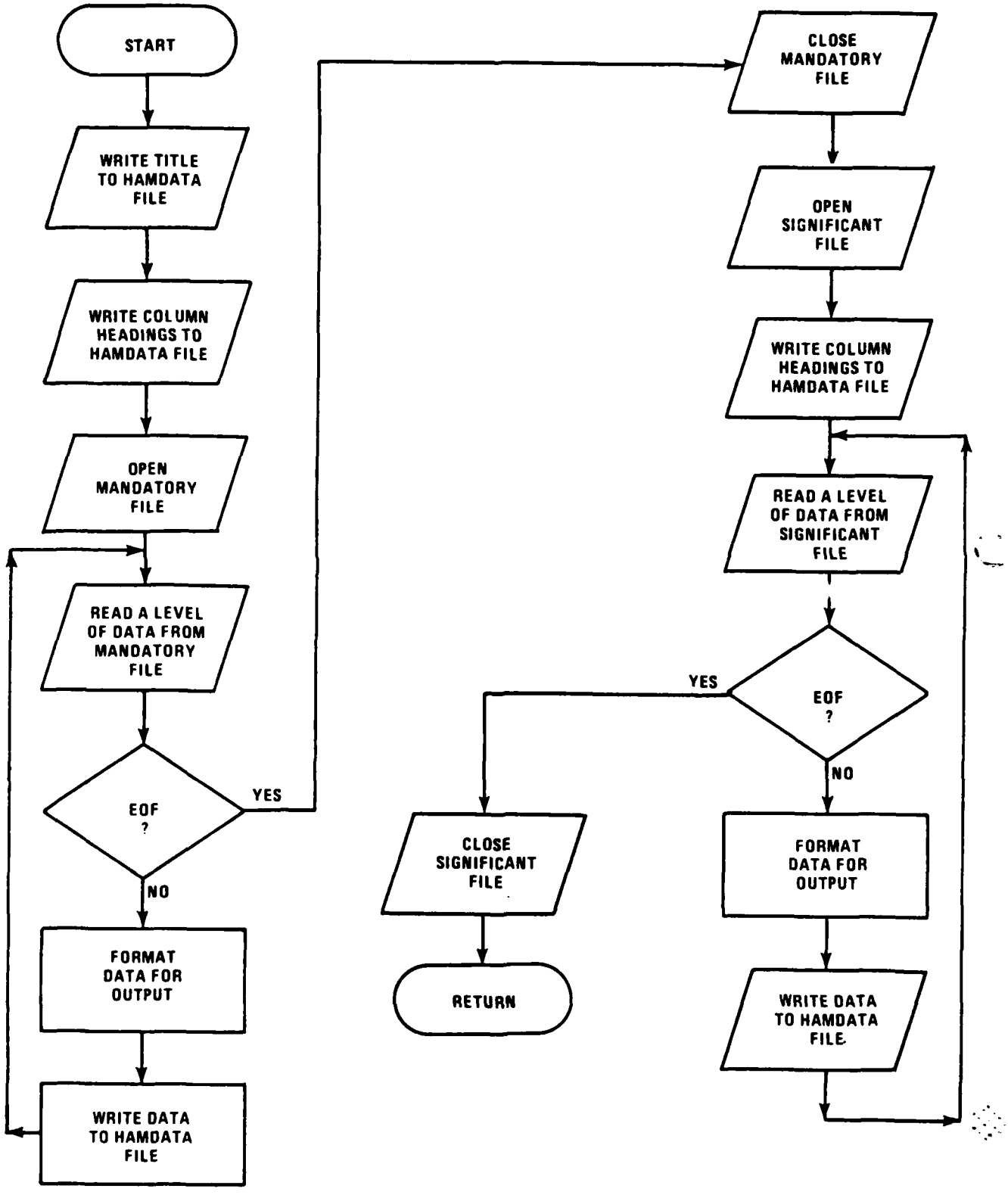
6.2.3 Subroutine ETFORM



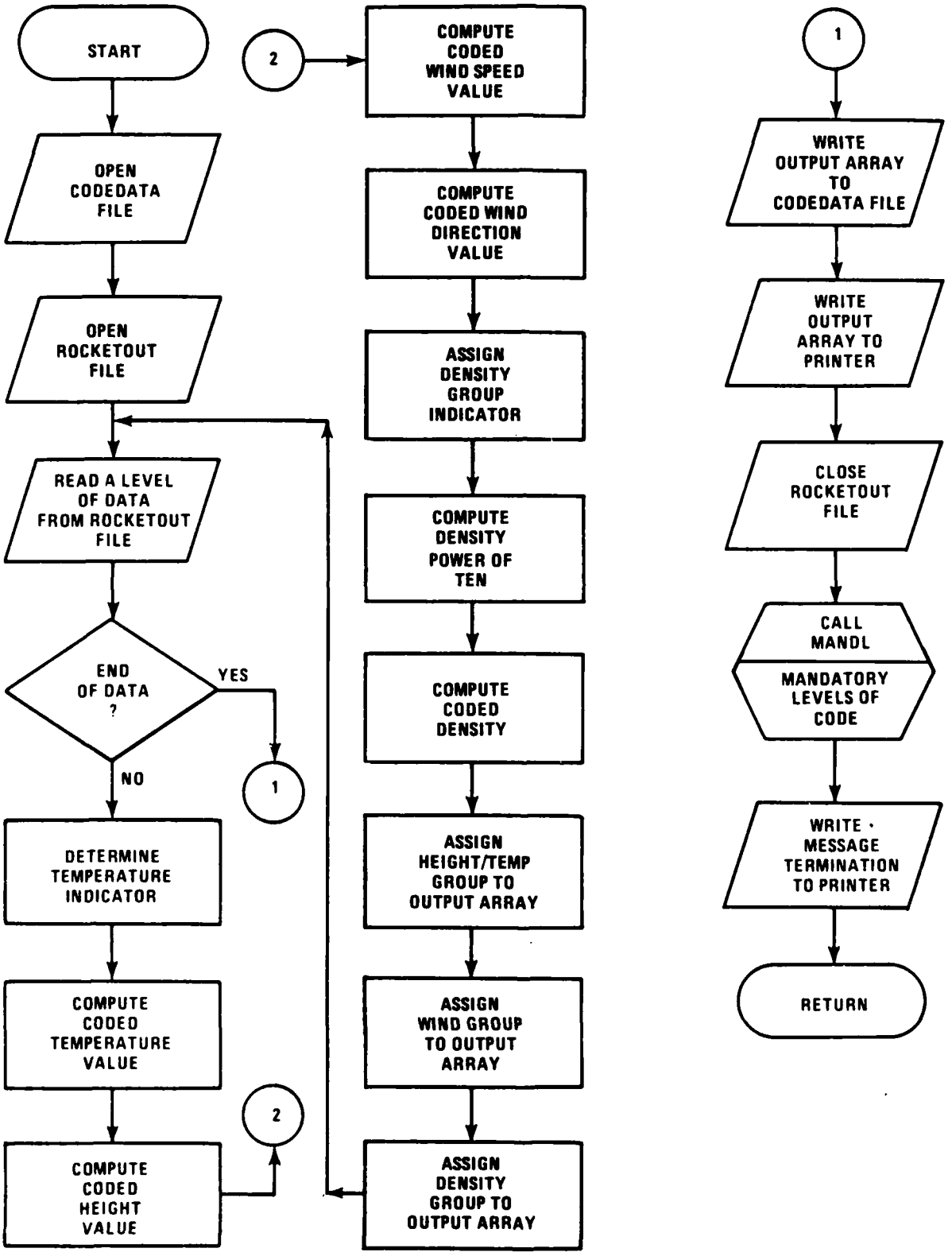
6.3 Subroutine CODIT



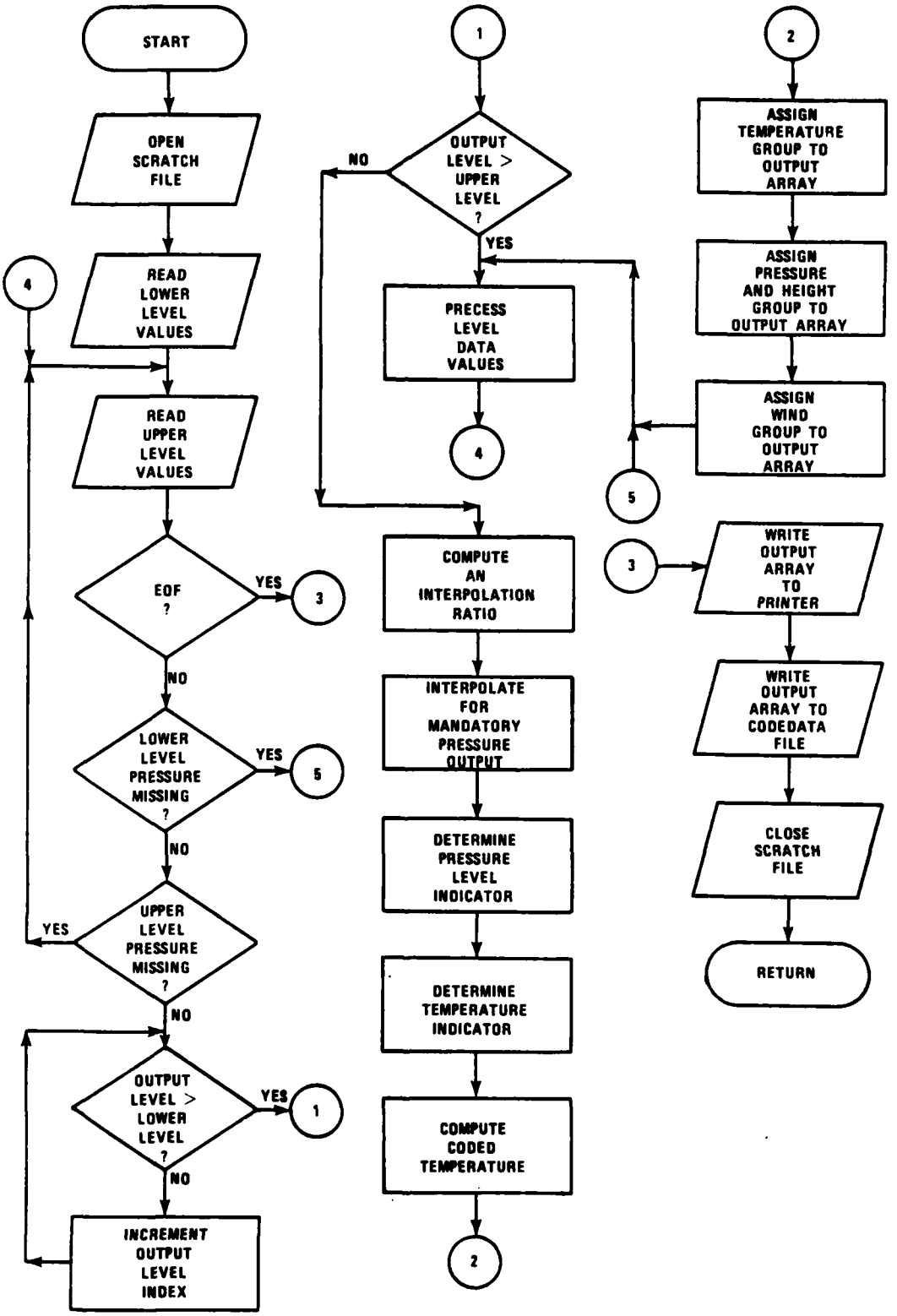
6.4 Subroutine RDRAWIN



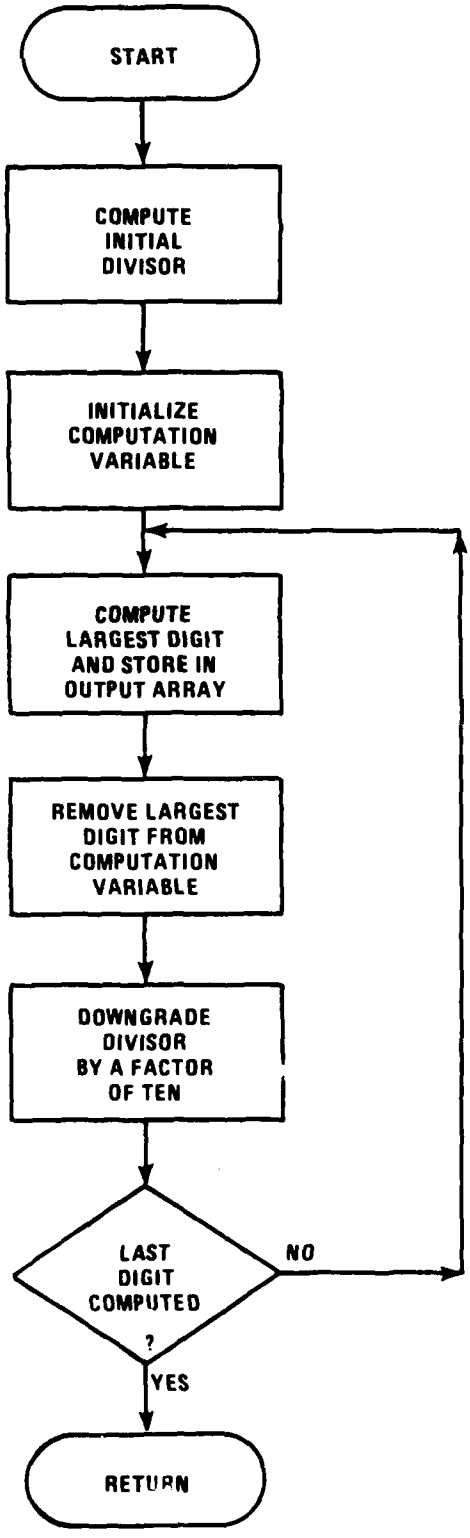
6.5 Subroutine ROCOB



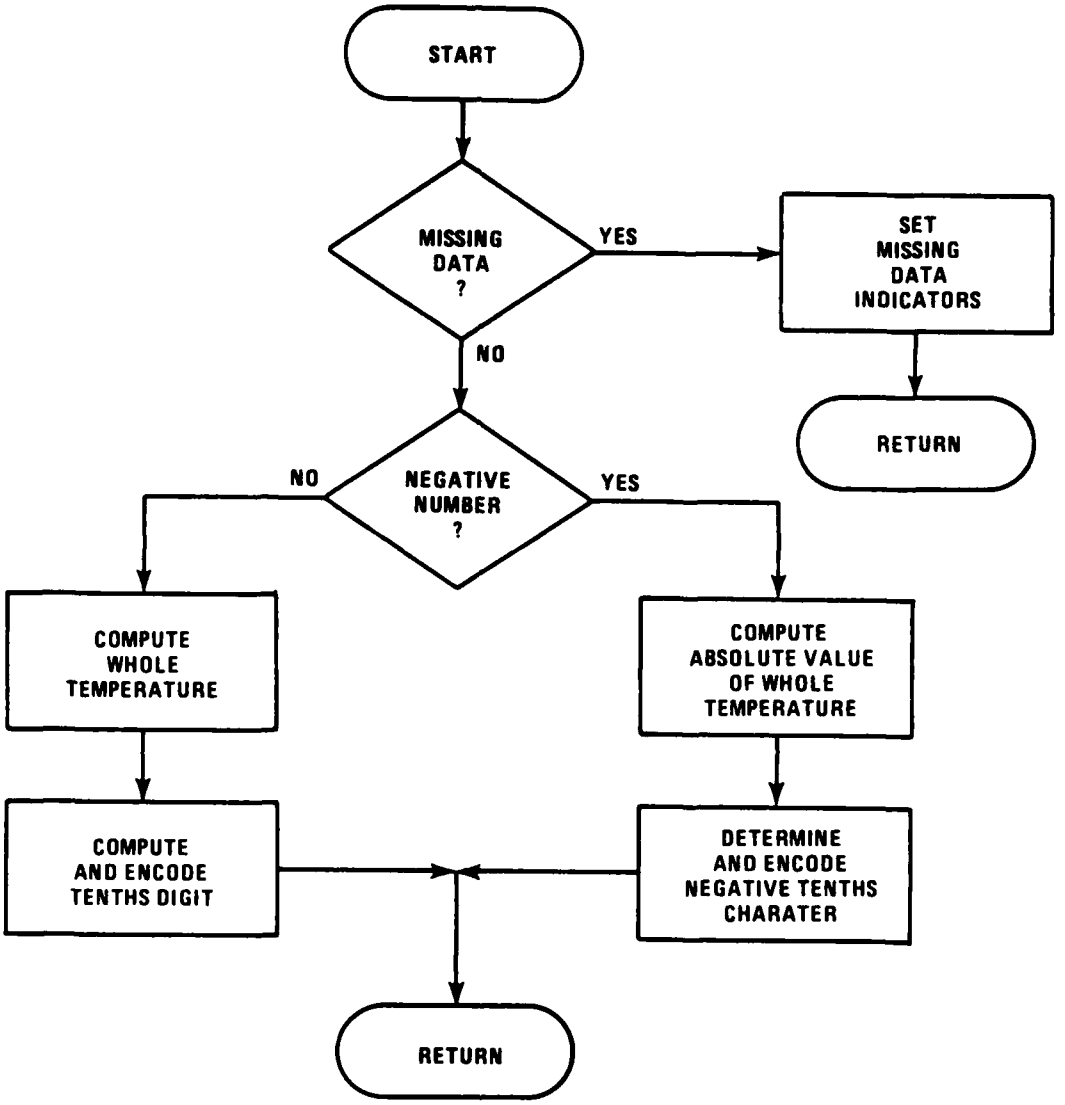
6.6 Subroutine MANDL



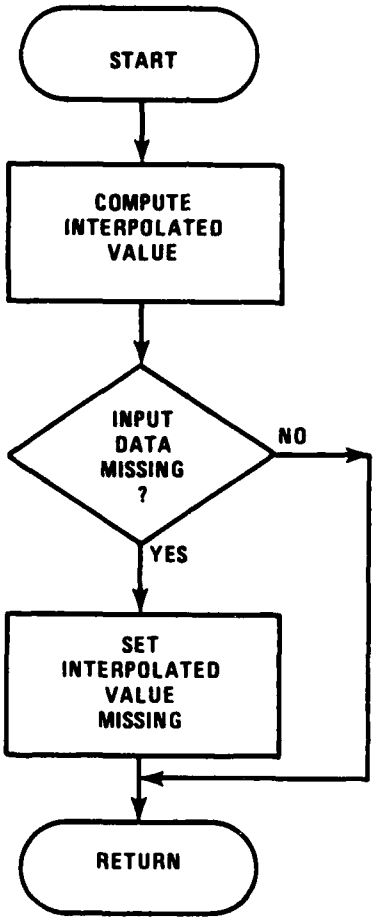
6.7 Subroutine LEFTZERO



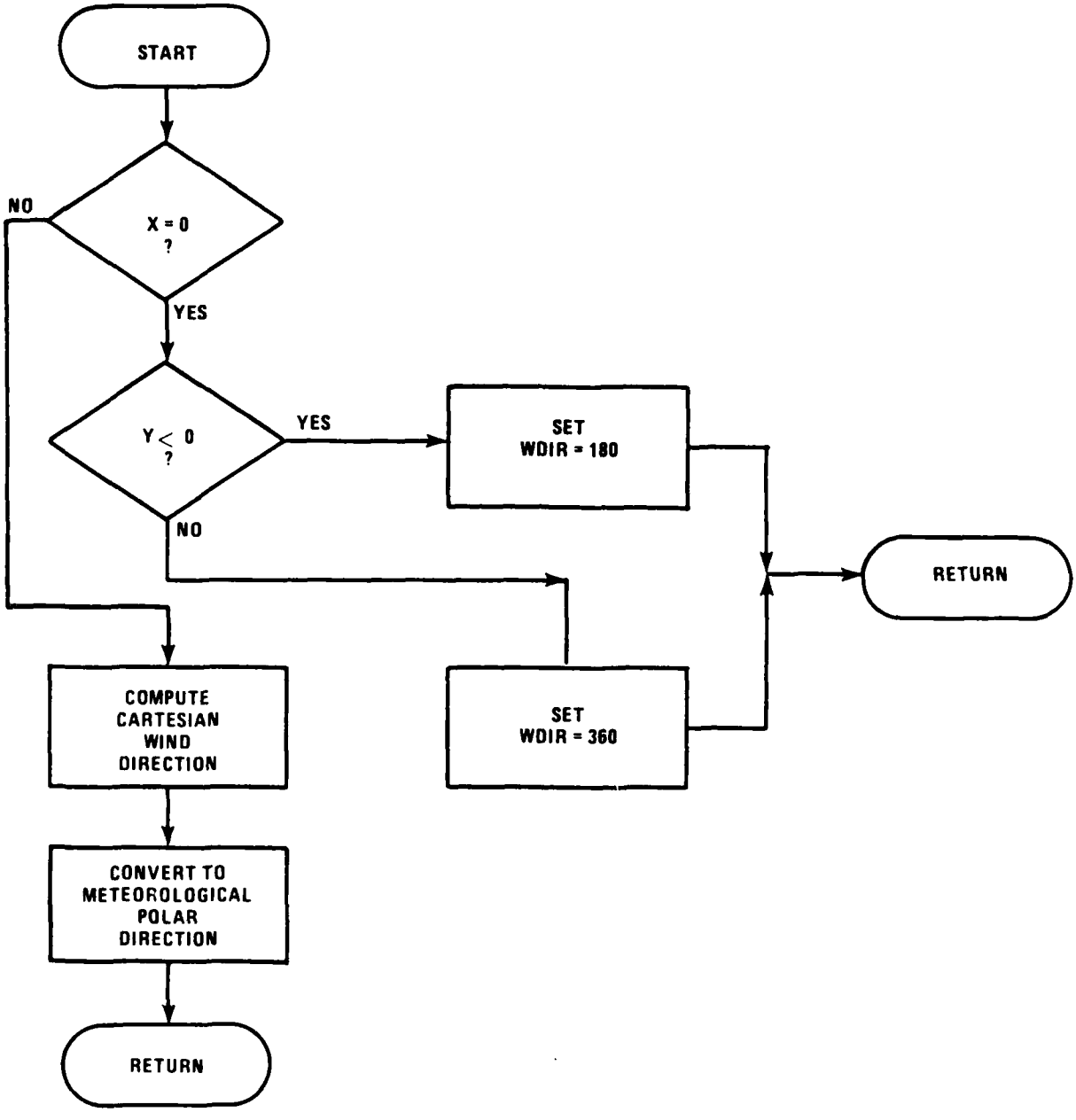
6.8 Subroutine TSIGN



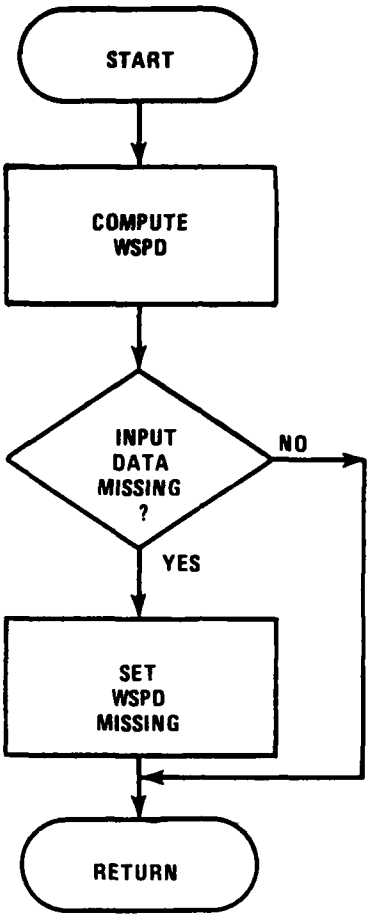
6.9 Function VALUE



6.10 Function WDIR



6.11 Function WSPD



7.0 MATHEMATICAL AND PHYSICAL CONSTANTS

7.1 Main Routine

Log of Mandatory Pressure Levels

LEVEL	50 MB	30 MB	20 MB	10 MB	7 MB
LOG	1.69897	1.47712	1.30102	1.0	0.84509
LEVEL	5 MB	3 MB	2 MB	1 MB	
LOG	0.69897	0.47712	0.30102	0.0	
LEVEL	0.7 MB	0.5 MB	0.4 MB	0.3 MB	
LOG	−0.15490	−0.30102	−0.39794	−0.52287	
LEVEL	0.2 MB	0.1 MB			
LOG	−0.699897	−1.0			
LEVEL	0.07 MB	0.05 MB	0.03 MB	0.02 MB	
LOG	−1.15490	−1.30102	−1.52287	−1.69897	
LEVEL	0.01 MB				
LOG	−2.0				
LEVEL	0.007 MB	0.005 MB	0.003 MB	0.002 MB	
LOG	−2.15490	−2.30102	−2.52287	−2.69897	
LEVEL	0.001 MB				
LOG	−3.0				
LEVEL	0.0007 MB	0.0005 MB	0.0003 MB	0.0002 MB	
LOG	−3.15490	−3.30102	−3.52287	−3.69987	
LEVEL	0.0001 MB				
LOG	−4.0				
LEVEL	0.00007 MB	0.00005 MB	0.00003 MB	0.00002 MB	
LOG	−4.15490	−4.30102	−4.52287	−4.69897	
LEVEL	0.00001 MB				
LOG	−5.0				

7.2 Subroutine ETFORM

20000	Minimum output altitude, meters
273.15	Freezing point of water (degrees K)
1000	Mandatory output interval
100 10 0.5	Output formatting constants

7.3 Subroutine CODIT

331.45	Speed of sound at zero degree Celsius, meters/second
273.15	Freezing point of water (degrees K)
348.38	Gas constant for dry air with pressure in millibars and density in grams per cubic meter, combined with conversion factors
10000 1000 10 0.001 0.000009	Output formatting constants

7.4 Subroutine RDRAWIN

0.3048	Number of meters per foot
0.514792	Converts knots to per second
10 100	Output formatting constants

7.5 Subroutine ROCOB

60	Octal number used to convert numeric numbers to character numbers

7.6 Subroutine MANDL

10 0.5 0.05 0.005 0.0005 0.00005 0.000005	Constants used to format output data

7.7 Subroutine LEFTZERO

None

7.8 Subroutine TSIGN

None

7.9 Function VALUE

None

7.10 Function WDIR

90	True east, degrees
180	True south, degrees
270	True west, degrees
360	True north, degrees
57.29578	Degrees in a radian

7.11 Function WSPD

None

ATTACHMENT 1

INTERMEDIATE SCRATCH FILE (FROM PASS 1)

HEIGHT MTS	CORRECTED X COMPONENT	CORRECTED Y COMPONENT	UN-CORRECTED X COMPONENT	UN-CORRECTED Y COMPONENT	CORRECTED TEMP DEGREES-C	UN-CORR TEMP DEGREES-C	PRESSURE MBS	FALL RATE MPS
19197.42	10.91	3.27	-16.35	-8.07	197.1	197.1	999.900	-.04
19209.82	-6.96	-.13	-16.98	-5.99	197.3	197.3	999.900	-.79
19276.25	5.07	2.62	15.13	-3.50	197.7	197.7	999.900	-4.97
19461.07	-6.07	-13.58	-12.45	-3.11	197.5	197.5	999.900	-6.02
19610.36	-9.78	-.29	-10.87	3.29	197.4	197.4	999.900	-3.93
19694.32	-7.51	-2.62	-6.94	-.14	199.2	199.2	999.900	-1.66
19734.26	6.88	5.02	-5.07	-2.64	201.5	201.5	999.900	-1.00
19821.73	-7.50	-7.21	-6.11	-13.66	202.4	202.4	999.900	-4.83
20000.00	-8.87	-9.19	-9.79	-12.39	202.2	202.7	1.742	-7.24
20002.80	-8.87	-9.19	-9.79	-12.39	202.2	202.7	1.742	-7.24
20160.87	-10.32	-10.09	-12.12	-5.62	203.3	203.8	1.731	-3.30
20258.64	-10.99	-9.01	-11.60	-6.91	204.4	204.9	1.724	-3.22
20403.30	-10.39	-6.30	-10.46	-7.66	205.1	205.5	1.713	-6.43
20575.81	-9.06	-5.03	-8.23	-9.50	205.9	206.3	1.701	-5.08
20694.45	-8.05	-5.22	-8.03	-2.09	206.6	207.0	1.693	-2.83
20813.98	-8.33	-5.94	-7.64	-3.30	207.1	207.5	1.684	-5.07
20905.71	-9.77	-6.64	-9.20	-5.81	206.9	207.3	1.677	-1.11
20999.60	-11.53	-7.78	-11.43	-10.61	206.6	207.0	1.671	-5.14
21154.67	-13.20	-10.14	-14.67	-12.39	207.1	207.5	1.660	-5.19
21267.37	-14.93	-10.66	-15.67	-7.99	207.9	208.4	1.652	-2.32
21340.62	-16.32	-9.97	-14.76	-9.82	208.5	208.9	1.647	-2.56
21483.42	-17.19	-8.55	-16.64	-10.18	208.9	209.4	1.637	-6.96
21645.24	-16.91	-7.26	-18.12	-6.82	210.1	210.5	1.625	-3.83
21762.42	-16.18	-6.97	-17.86	-6.06	211.4	211.8	1.617	-3.98
21942.35	-15.74	-6.28	-15.46	-5.81	211.3	211.7	1.604	-8.02
22071.20	-15.51	-5.37	-13.14	-5.22	211.3	211.8	1.596	-.58
22166.02	-15.52	-5.23	-14.37	-6.69	211.4	211.8	1.589	-5.75
22346.61	-16.08	-4.44	-17.72	-4.59	211.4	211.9	1.576	-6.29
22479.30	-17.15	-3.05	-18.62	-1.58	211.9	212.4	1.567	-2.55
22589.21	-17.98	-1.62	-17.01	-3.06	212.3	212.7	1.560	-4.78
22741.97	-17.77	.43	-17.30	.34	212.7	213.1	1.549	-5.41
22869.64	-16.66	.94	-17.52	1.51	213.0	213.4	1.540	-3.10
23000.34	-15.81	.19	-16.50	.74	212.9	213.4	1.531	-5.61
23179.65	-15.97	-1.25	-15.16	1.23	213.6	214.1	1.519	-6.34
23345.01	-16.45	-3.23	-14.77	-5.13	214.4	214.9	1.507	-4.68
23493.35	-17.38	-5.18	-17.31	-6.61	215.0	215.5	1.497	-5.21
23673.91	-18.74	-5.69	-20.41	-6.48	215.4	215.9	1.485	-6.83
23834.14	-19.61	-5.89	-20.08	-4.28	215.6	216.0	1.474	-3.85
23981.30	-20.44	-3.94	-20.25	-5.20	216.4	216.9	1.464	-5.96
24152.46	-20.54	-2.50	-20.14	-1.37	216.9	217.4	1.452	-5.45
24311.77	-20.80	-1.68	-19.57	-3.57	217.2	217.7	1.442	-5.17
24499.73	-20.69	-2.53	-22.32	.70	217.3	217.7	1.429	-7.36
24694.94	-21.08	-4.04	-21.22	-3.63	217.2	217.7	1.416	-5.65
24870.14	-21.58	-5.61	-22.20	-5.90	217.3	217.8	1.404	-6.03
25013.83	-22.30	-6.88	-20.12	-9.99	218.0	218.5	1.394	-3.55
25181.65	-22.75	-7.54	-23.19	-7.79	218.6	219.2	1.383	-7.65
25420.50	-23.73	-6.92	-24.52	-4.94	219.2	219.7	1.367	-8.26
25684.62	-24.57	-6.28	-24.96	-7.06	219.9	220.4	1.349	-9.34
25881.54	-24.92	-5.82	-24.64	-4.05	219.9	220.4	1.336	-3.79
26022.61	-25.11	-6.29	-25.31	-7.33	219.9	220.4	1.327	-5.62

26213.01	-25.18	-7.14	-24.95	-7.40	221.0	221.5	1.314	-7.08
26466.80	-25.33	-7.65	-25.97	-7.85	221.9	222.4	1.301	-5.64
26647.03	-25.20	-8.38	-27.46	-7.80	222.0	222.5	1.285	-10.57
26881.08	-25.44	-8.75	-24.72	-9.07	222.1	222.6	1.269	-5.70
27067.43	-26.11	-9.21	-25.21	-8.97	222.0	222.5	1.257	-6.06
27251.50	-27.29	-8.51	-27.04	-8.86	221.7	222.2	1.245	-6.21
27446.67	-28.40	-9.01	-28.58	-10.22	221.6	222.1	1.232	-6.80
27667.77	-29.63	-8.84	-30.00	-7.71	222.3	222.9	1.218	-7.94
27901.09	-30.48	-9.75	-31.54	-6.42	224.2	224.7	1.202	-7.62
28152.63	-30.43	-9.58	-30.72	-13.50	225.5	226.0	1.186	-9.44
28394.07	-30.77	-8.71	-29.13	-8.03	226.0	226.5	1.170	-6.36
28696.21	-30.83	-8.21	-31.47	-10.80	226.5	227.1	1.151	-13.78
28980.21	-31.54	-6.64	-30.32	-3.33	226.4	226.9	1.132	-5.15
29188.75	-32.56	-4.01	-33.86	-4.47	226.4	227.0	1.119	-8.75
29452.15	-32.78	-4.15	-32.03	-5.54	226.6	227.2	1.102	-8.81
29758.82	-32.32	-5.42	-34.32	-3.21	228.1	228.7	1.082	-11.63
30071.84	-31.32	-8.24	-31.34	-6.18	228.9	229.5	1.062	-9.22
30326.90	-30.41	-11.18	-28.85	-13.58	228.0	228.5	1.045	-7.80
30609.70	-30.43	-13.42	-30.36	-15.26	226.5	227.1	1.027	-11.06
30881.46	-31.45	-15.18	-29.03	-13.86	224.6	225.1	1.009	-7.06
31209.28	-30.95	-13.78	-33.87	-16.45	223.6	224.3	.988	-14.79
31562.77	-31.80	-11.81	-33.03	-11.32	222.8	223.4	.964	-9.11
31844.86	-31.54	-13.01	-33.11	-11.43	222.4	223.0	.946	-9.37
32086.10	-31.38	-13.44	-24.13	-8.36	222.3	222.9	.930	-6.72
32381.59	-30.91	-15.03	-36.02	-18.14	224.6	225.3	.911	-12.98
32869.07	-30.14	-17.35	-29.09	-23.52	227.7	228.5	.883	-15.52
33183.34	-29.81	-19.07	-31.29	-13.24	228.7	229.4	.859	-9.44
33512.30	-30.29	-20.42	-30.33	-21.98	229.6	230.3	.838	-12.49
33870.42	-29.42	-19.77	-26.44	-18.47	230.4	231.2	.815	-11.38
34258.64	-30.86	-18.82	-31.52	-20.22	232.6	233.4	.791	-14.50
34669.76	-31.48	-18.52	-32.85	-19.56	234.8	235.5	.765	-12.91
35094.22	-34.34	-16.87	-34.90	-16.48	237.0	237.8	.739	-15.39
35559.08	-37.24	-14.87	-35.29	-12.74	239.9	240.7	.710	-15.60
36043.07	-38.91	-11.60	-37.42	-12.56	243.9	244.7	.683	-14.66
36508.89	-40.28	-10.50	-44.40	-13.87	247.2	248.1	.653	-18.39
36926.01	-39.65	-11.24	-38.97	-5.36	247.9	248.7	.624	-14.08
37449.98	-37.54	-11.93	-38.26	-9.18	250.7	251.6	.598	-16.18
38004.94	-34.06	-11.57	-34.17	-16.97	255.7	256.7	.565	-20.82
38613.53	-29.93	-9.47	-27.66	-13.01	258.0	258.9	.531	-19.76
39210.11	-28.07	-7.57	-26.95	-5.80	257.8	258.7	.497	-20.02
39813.40	-26.95	-2.64	-26.06	-1.44	258.1	259.0	.463	-20.20
40443.74	-25.59	1.26	-25.44	3.06	260.3	261.4	.427	-21.82
41120.89	-23.63	.85	-25.76	-.01	264.1	265.2	.389	-23.32
41808.04	-18.61	-2.88	-20.61	.49	266.2	267.2	.352	-22.49
42485.51	-9.75	-10.70	-9.98	-11.31	264.8	265.8	.314	-22.68
43221.89	-3.34	-17.16	-3.90	-19.18	264.6	265.2	.274	-26.41
44024.24	-1.09	-22.86	6.17	-25.54	265.6	266.9	.229	-27.08
44854.61	-1.59	-29.06	7.68	-32.83	268.1	269.3	.184	-28.28
45700.02	-2.69	-28.99	-12.94	-21.56	268.1	269.5	.135	-31.41
46720.29	-2.33	-27.31	-11.50	-31.96	271.3	272.8	.083	-33.27
47765.03	-1.57	-25.40	1.08	-30.22	274.3	275.7	.027	-36.38
48869.07	1.70	-23.60	8.65	-14.06	269.8	271.3	-.032	-37.22
50073.09	7.77	-24.86	9.49	-24.35	268.5	270.5	-.098	-43.04
51412.18	9.33	-24.48	5.61	-26.02	271.5	273.7	-.170	-46.23
52838.63	6.09	-24.79	5.89	-24.75	271.1	273.4	-.246	-48.87
54417.78	4.33	-26.48	3.19	-25.61	269.9	272.7	-.331	-56.41

PASS 2

B-190

ROCS 3

56177.57	-4.53	-17.64	-6.39	-15.57	267.0	270.0	-.427	-60.91
56129.80	13.15	-5.03	-14.15	-5.25	258.0	262.0	-.535	-69.24

PASS 2
B-191

ROCS 3

```
   8                                                    444A  F06B  ............BJ.K
  10  C1AE  B7FE  4134  5C51  C210  5999  C1B1  2000  A...A4\QR.Y.A. .
  18  42C5  2415  42C5  2415  433E  7E67  BF90  BBBB  BE$.BE$.C).G?...
  20  444B  0903  C161  4C27  C020  4F4F  C210  FB33  DK.SAoL'@ OOR..3
  28  C15F  E199  42C5  490A  42C5  490A  433E  7E67  A_A.BEI.BEI.C).G
  30  C0CA  B333  444B  604F  C151  27NC  C129  E1DB  @J33DK`?AQ'\A)AL
  38  C1F2  3232  C137  FD55  42C5  B84E  42C5  B84E  AR``A7mUBEBNBEBN
  40  433E  7E67  C14F  83BB  444C  0512  C161  2F59  C).GAO.?DL..AA/Y
  48  C1D9  514F  C1C7  2AAA  C131  D2AA  42C5  7911  AYQOAG**A1K*BEy.
  50  42C5  7911  433E  7E67  C160  4C44  444C  9A5B  BEy.C).GA`LDDL.L
  58  C19C  7038  C04A  9990  C1A0  EEEE  4134  AE66  A.p(@J..A-nnA4.f
  60  42C5  6DCE  42C5  6DCE  433E  7E67  C13E  F088  BEmNBEmNC).GA)p.
  68  444C  EE53  C178  2981  C129  F053  C16F  0888  DLnSAx)1A)pSAo..
  70  C024  A222  42C7  3849  42C7  3849  433E  7E67  @$``BG8IBG8IC).G
  78  C11A  A000  4440  1643  C16E  170E  C150  4780  A. .DM.CAn..AFG0
  80  C151  2222  C12A  3F77  42C9  858E  42C9  858E  AQ``A*?wBI..BI..
  88  433E  7E67  C0FF  A222  4440  6D88  C178  0CF3  C).G@.``DMm?Ax.s
  90  C173  670D  C161  CCCC  C1DA  9666  42CA  6959  AsG.AaLLAZ.fBJiY
  98  42CA  6959  433E  7E67  C140  5222  444E  2000  BJiYC).GAMR`DN .
  A0  C18D  DB98  C193  183F  C19C  B333  C1C6  4666  A.[.A..?A.33AFFf
  A8  42CA  3D0C  42CA  B419  411B  E115  C173  0111  BJ=\BJ4.A.A.AsQ.
  B0  444E  220C  C18D  DB98  C193  183F  C19C  B333  DN"LA.[.A..?A.33
  B8  C1C6  4666  42CA  3D2D  42CA  B419  411B  E03F  AFFfBJ=-BJ4.A.`?
  C0  C173  D111  444E  C00E  C1A5  2BRB  C1A1  7BAF  AsQ.DN@`A%+?A!./
  C8  C1C1  F777  C159  E5D0  42CB  5617  42CB  C9AC  AAwwAYeJBKV.BKI,
  D0  411B  B145  C134  CAAA  444E  22A3  C1AF  C485  A.1EA4J*DQ"$A/D.
  D8  C190  1B08  C1B9  9999  C16E  9F77  42CC  6E29  A...A9..An.wBLn)
  E0  42CC  E066  411B  945E  C133  7F7Z  A44F  B34C  BL`$A..?A3.wDD3L
  E8  C1A6  382C  C164  D138  C1A7  6666  C17A  A2AA  A&8,AdQ?A'ffA."*
  F0  42CD  1682  42CD  8B71  411B  69CB  C166  CIDD  BH..BH.gA.iKAfMI
  F8  4450  5FD0  C190  F730  C150  8989  C183  BBBB  DP_PA.w=AP..A.??
 100  C19B  0B00  42CD  E00E  42CE  5309  411B  3733  A...BH`.BNS.A.73
 108  C151  36EE  4450  D674  C180  CD62  C153  833E  AQ6nDPVtA.MbAS.)
 110  C18G  6666  C121  6111  42CF  98EA  42CF  08EE  A.ffA!a.BN.JBO.N
 118  411B  1489  C12D  55D0  4451  4CFA  C185  546A  A...A-U1DQL.A.TJ
 120  C15E  FDEB  C17A  3BBB  C134  B888  42CE  14D9  A^.kA.??A48.BO.Y
 128  42CF  84BE  411A  F202  C151  1666  4451  A9B7  BO.)A.A.AQ.fDQ)7
 130  C19C  5F15  C16A  416E  C193  3BBB  C15C  ER33  A._.AjAnA.??A\k3
 138  42CE  EC91  42CF  57D3  411A  D703  C111  D555  BNL.BOWSA.W.A.UU
 140  4452  0Z9A  C1B8  85B8  C17C  79D3  C1B6  DDDD  DR..A8.BA.ySA6]]
 148  C1A9  D444  42CE  94A8  42CF  0483  411A  88A7  A)TDBN.(SO..A.?'
 150  C152  5000  4452  A2AC  C1D3  2651  C1A2  51C7  ARF.DR",AS&QA"QG
 158  C1EA  C444  C1C6  32AA  42CF  1045  42CF  8611  AjDDAF2*BO.EBO..
 160  411A  8E7A  C153  1B88  4453  135E  C1EF  E798  A...AS..DS.^Ang.
 168  C1AA  9923  C1FA  B8B8  C17F  E38B  42CF  E883  A*.#A.??A.c?BOh.
 170  42D0  5BA6  411A  6DC1  C125  1D55  4453  5C9E  BPL&A.mAA%.UDS\.
 178  C210  50A6  C19F  77EB  C1EC  1999  C19D  12AA  B.]&A.wkAL..A..*
 180  42D0  78D6  42D0  EB06  411A  588E  C129  04CC  BPxVBPk.A.X.A).L
 188  4453  E868  C211  2F5F  C188  C776  C210  A333  DSkkB./_A.GvB.#3
 190  C1A2  L2AA  42D0  E5CB  42D1  5E16  411A  2F55  A"B*BPeKNQ`.A./U
 198  C16F  4CCC  4454  803E  C210  E92E  C174  1E2E  AoLLDT.)B.i.At..
 1A0  C212  1E66  C16D  1000  42D2  0F83  42D2  8589  B..fAm..BK..BK..
 1A8  411A  00CC  C130  5088  4455  026C  C210  2E6A  A..LA=P.DU.LB..J
 1B0  C16F  7703  C211  DD55  C161  0888  42D3  6464  Aow.B.JUAa..BSdd
 1B8  42D3  0728  4119  0F4D  C13F  ACCC  4455  8659  BSW+A._MA?,LDU6Y
 1C0  C1FB  C9D5  C164  6C39  C1F7  5DDD  C15C  E888  A.IUAdL9Aw]]A\h.
```

1C8	4203	4A1F	4203	BF81	4119	AC05	C180	3FEE	BSJ.BS?.A.?.A.)N
1D0	4456	3734	C1F8	2160	C155	EC?N	C1D2	3333	DV74Ax!^AUL.AK33
1D8	C153	7B88	4203	5248	4203	C42E	4119	874A	AS.;BSRKBSD.A..J
1E0	C093	3333	4456	9605	C1F8	655F	C153	9D45	@.33DV..AxE_AS.E
1E8	C1E5	EEEE	C16B	1777	4203	62F9	4203	08AE	AENNAK.wBSBYBSX.
1F0	4119	6C45	C15B	F088	4457	4A9D	C210	1475	A.LEAlP.DWJ.B..U
1F8	C147	1759	C211	B999	C149	7388	42D3	6BFE	AG.YB.9.AIs;BSK.
200	42D3	E369	4119	38D2	C164	B199	4457	CF4C	BSciA.BRAd1.DWOL
208	C211	26CC	C130	DD86	C212	9E66	C119	3D55	B.&LAO].B..FA.=U
210	42D3	EA08	42D4	5E33	4119	1311	C128	D5DD	BSJ.BI^3A...A(UJ
218	4458	3D35	C211	F84E	C119	F015	C211	0222	DX=5B..NA.P.B.."
220	C131	0111	42D4	43F1	42D4	B9A9	4118	F3DB	A1..BICqBT9)A.sE
228	C14C	6666	4458	B5FD	C211	C54E	406E	C320	ALFFDXU.B.EN@nC
230	C211	4D55	4057	0000	42D4	6816	42D5	1E51	B.MU@W..BT(.BU.Q
238	4118	C680	C156	9199	4459	55A5	C210	A9D8	A.H.AV..DYUZ8.)X
240	40E1	D3B0	C211	8444	4118	2800	42D4	ECD7	@aSOB..DA.(.BI.W
248	42D5	6FA1	4118	A46E	C131	9911	4459	D858	BUo!A.$NA1..DYXX
250	C1EC	F2?1	402F	B010	C210	7EEE	40BC	7777	A.B!@/0.B..N@<ww
258	42D4	EBD2	42D5	653E	4118	7F79	C159	D088	BIkKBUE)A..YAYP.
260	445A	8BA6	C1FF	95C1	C113	F9A7	C1F2	8888	DZ.&A..AA.Y!AB..
268	4113	A333	42D5	93A8	42D6	0FFE	4118	4C08	A.#3BU.(BV..A.LX
270	C165	7199	445B	3103	C210	7380	C133	6A4C	AEa.DE1.B.s.A3%L
278	C1EC	AAAA	C152	1999	42D6	6B96	42D6	E551	AL**AR..BVK.BVEQ
280	4118	1E52	C14A	F111	445B	C55A	C211	6214	A..RAJa.DLEZB.B.
288	C152	E0C7	C211	4EEE	C169	C444	42D7	0546	AR`GB.NNAIDDBW.F
290	42D7	7E59	4117	F4BA	C153	4A22	445C	79EA	BW.YA.T:ASJ"D\YJ
298	C212	8579	C15B	125A	C214	6999	C167	A3BB	B.5vAC.ZB.I.Ag#;
2A0	42D7	7D4D	42D7	EA4A	4117	C239	C16D	4EEE	BWPMBWJEA.BYAmNn
2A8	445D	1A25	C213	9D31	C15E	44E5	C214	14CC	DJ.ZB..1A^DEB..L
2B0	C144	7AAA	42D7	BFBE	42D8	06E1	4117	9527	AD.*BW..Bx.aA..w
2B8	C130	9AAA	445D	AD4E	C214	70AC	C13F	05E1	A=.*DJ-NB.P.A7.A
2C0	C214	3F27	C153	3000	42D8	6B2B	42DB	E28B	B.?wASQ.BXH(HXB.
2C8	4117	6C73	C15F	5DDD	445E	5877	C214	6940	A.LsA_]]D^XwB..@
2D0	C128	0598	C214	22AA	C115	F727	42DB	FB51	A(..B."*A.wwBXwQ
2D8	42D9	6753	4117	3CE6	C157	3444	445E	F7C4	BYgSA.(FAW4DD^wD
2E0	C214	CC58	C11A	D295	C213	9111	C139	14CC	B.LXA.R.B...A9.L
2E8	42D9	35B7	42D9	B011	4117	10BA	C152	B800	BY5/BYO.A..:AR8.
2F0	445F	B3BC	C214	E514	C128	7974	C216	5222	D_3<B.E.A(YTB.R"
2F8	40B2	5DDD	42D9	4045	42D9	BCDB	4116	DCA6	@2]]BYGEBY(CA.\&
300	C175	C777	4460	76F1	C215	13D8	C140	9251	AuGwD`vqB..XA@.Q
308	C215	3999	C13A	0666	42D9	2E87	42D9	A8D9	B.9.A:.FBY..BY(Y
310	4116	A690	C15A	71YY	4461	2624	C215	9368	A.&.AZq.DA&$B..H
318	C159	C8D8	C216	32AA	C15E	5CCC	42D9	5468	AYH.B.2*A^\LBYTH
320	42DY	D114	4116	7608	C160	6F77	4461	B5D4	BYQ.A.v.A`owDA5T
328	C216	4D79	C16E	0A0E	C214	1E66	C19F	D868	B.MvAn..B..FA.X.
330	42D9	FD76	42DA	7D26	4116	4F4E	C138	D4CC	BY..RZ.&A.NNA8TL
338	4462	5DDA	C216	BFE0	C178	9655	C217	3068	D@]ZB.?`Ax.UB.0.
340	C17C	A4CC	42DA	A32F	42DB	2773	4116	1FFE	A.LBZ/BL'SA...
348	C17A	6444	4463	4C8C	C217	BB7D	C16E	8F74	A.DDcL.B.;.AN?T
350	C218	B444	C14E	F822	42DB	30A4	42DB	B5F9	B..DAN."BL0$BC5Y
358	4115	DE63	C184	3777	4464	549F	C218	9298	A.^cA.7wDBT.B...
360	C164	72ZE	C218	F555	C171	0088	42DB	EC95	ADB.B.uUAQ..BLL.
368	420C	721C	4115	9606	C195	7666	4465	1988	B\B.A...A.vFDE..
370	C218	EC17	C15D	0D71	C218	62AA	C140	D922	B.L.AJ.QB.'*A@Y.
378	42DB	E248	42DC	5DA4	4115	6027	C13C	9666	BCBKB\]$A.`?A(.F
380	4465	A698	C219	1CA3	C164	AFBB	C219	5088	DE&.B..$AD/.B.P.

380	C175	3555	420B	E7C8	420C	6CAE	4115	398F	AU5UBEGKB\L..A.9.
390	C159	[illegible]	4466	6503	C219	2E6C	C172	3A94	A)A.DFE.B..(AR:.
398	C218	F333	C176	7AAA	420C	FBA7	4200	844E	B.s3Av.*B\.7B(.N
3A0	4115	0596	C171	3911	4467	23CC	C219	7DAC	A...AG9.Dg$(B...
3A8	C17A	79FF	C217	F911	C170	A222	420D	D9AC	A.v.B.v.A.``B(7
3B0	420L	5BC6	4114	D1C6	C15A	4777	4468	1708	B`JVA.QFA7QWDH..
3B8	C219	323F	C186	1CF6	C218	7666	C17C	CC44	B.2?A..vB.vFA.LD
3C0	420B	0074	420L	BAE9	4114	BFDA	C1A9	2BBB	B`.*B`.IA..ZA)4;
3C8	4469	0814	C219	71A2	C18B	F132	C218	6868	D[..B.q`A.q2B.B.
3D0	C191	1CCC	420L	2235	420E	A2EB	4114	4DC2	A..LB`'5B`'KA.MB
3D8	C15B	2555	4469	BB6F	C21A	1CF7	C193	67D2	AC/UD1;OB..WA.GR
3E0	C219	34CC	C18F	7C44	420D	FB61	420E	802E	B.4LA..DB'.AB`..
3E8	4114	10FF	C160	F800	446A	737F	C21B	4AEB	A...A`x.0Js.B.JK
3F0	C188	1504	C21B	0A22	C18D	B999	420D	B576	A...B..`A.9.0J5V
3F8	420E	3AC1	4113	EC1B	C163	5055	4468	36AB	B`:AA.L.Ac`UDK6+
400	C21C	6696	C190	1DF3	C21C	93BB	C1A3	74CC	B.F.A..sR..;A$tL
408	420D	9C0F	420E	251E	4113	8729	C16C	0199	B1..B`Z.A.7)ALQ.
410	446C	13BB	C21D	A0FF	C18D	7C40	C21D	FF6E	DL.8B. .A..0R..N
418	C178	6999	420E	536E	420E	E368	4113	7B48	A.I.B`SnB`cKA..H
420	C17L	F8U0	446C	FD18	C21F	7AAA	C19B	F0AF	A.x.DL..B..*A.P/
428	C21F	8911	C166	C199	42E0	2907	42E0	B91E	B...AFA.8`).B`9.
430	4113	3C6E	C179	F6EE	446D	EBD7	C21E	6EEB	A.(NAVvmDm..B.n.
438	C199	422F	C21E	8750	C107	FA22	42E1	747A	A.B/B.7]AW.`BAT.
440	42E2	0916	4112	F2FB	C192	0777	446E	EA12	Bs..A.w.A..wDNJ.
448	C21E	C638	C18B	490E	C21D	214C	C180	7000	B.F]A.I.B.!LA.P.
450	42C1	FD18	42E2	89A6	4112	R8DC	C165	D199	Ba..Bs.&A.8\AEQ.
458	4470	1837	C21E	D4AC	C183	6026	C21F	7799	Dp./B.T;A.`&B.w.
460	C16C	C192	42E2	7023	42E3	1891	4112	6895	A.A.Bs.$Bc..A.h.
468	C1DC	7777	4471	3435	C21F	8AA0	C16A	33E1	A\wwDq45B..-AJ3A
470	C21E	50AA	C135	5BBB	42E2	5DFB	42E2	E54C	B.P*A5C;Bs].BsEL
478	4112	1033	C152	7555	4472	04C0	C220	9058	A..3ARoUDs.@8 .X
480	C140	2B69	C221	DC08	C147	8222	42E2	63AF	A@+IB1\.AG."BsC/
488	42E2	F764	4111	E5D6	C18B	FD55	73	0C27	BswDA.eVA..UDs.'
490	C220	C84A	C142	6019	C220	07D5	C158	4222	B HJAB`.B .UAX"`
498	42E2	9EC8	42E3	36AC	4111	9FF4	C18C	F911	Bs.HBc6;A..tA.y.
4A0	4474	3ED1	C22D	5EA1	C156	C019	C222	525D	Dt)QB`!AV@.B"R]
4A8	C133	4999	42E4	11A3	42E4	8114	4111	4EE6	A3I.Bd.$Bd1.A.Nf
4B0	C1BA	22AA	4475	77A5	C21F	50BA	C183	DDC3	At"*DuwZB.P;A.]C
4B8	C21F	564C	C162	E222	42E4	F0EE	42E5	8866	B.VLAbs"BdpnBe.F
4C0	4110	EC05	C193	8BBB	4476	76E7	C21E	699D	A..ZA..;DvvgB.i.
4C8	C1B2	F5AE	C21C	D9CC	C1D9	3666	42E3	FD81	A2u.B.YLAY6FBc.1
4D0	42E4	8BF1	4110	B9B6	C17C	BB33	4477	91B2	Bd.qA.9.A.;3Dw.2
4D8	C21E	6E8B	C1D6	B0AE	C21E	5C44	C1F4	3555	B.N.AVO.B.\DAt5U
4E0	42E2	8941	42E3	1C69	4110	6EC6	C1B0	EA22	Bs.ABc.iA.nFAOJ"
4E8	4478	A177	C21F	7381	C1F2	CDF0	C210	06D5	Dx!wB.s.ArMpB..U
4F0	C1DD	C444	42E0	975B	42E1	2519	4110	2667	A]DDB`.IBaz.A.&G
4F8	C170	F911	4479	E948	C21E	F355	C1DC	8410	Apv.DvIHB.sUA\..
500	C221	DD91	C210	7277	420F	9B4B	42F0	45E9	B!].B.RwB_.NB`Ei
508	40FC	E88A	C1EC	6222	447B	4FC4	C21F	CD08	@.H:AL2"D.0DB.MB
510	C1BD	0559	C221	0733	C1B5	0CCC	42DE	CEAE	A=.YB!.3A5.LB^N.
518	420F	68BE	40F6	E169	C191	B088	447C	64DB	B_k)@vA.A.0.0.DC
520	C21F	BA18	C1D0	1DA6	C221	1B92	C1B6	D555	B...AP.&B!..66UU
528	420E	6698	420F	0609	40F2	359F	C195	DF77	B^F.B_.Y@B5.A._w
530	447D	561A	C21F	603E	C1D7	1935	C218	2280	D.V.3.`)AW.5B.'.
538	C185	BAAA	420E	4187	420E	ECE3	40EE	2333	A.:*B^A/B^LC@N#3
540	C16B	7444	447F	7D96	C21E	E85E	C1F0	89CD	AKTDD...B.H^Ap.M

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548  C224  0800  C212  235D  42E0  926D  42E1  54F6  B...B.#JB`.mBA!V
550  40F9  2CB9  C1CF  BAAA  44B0  2912  C21E  234D  @!.9A0:*D.).B.#M
558  C211  5A07  C210  1844  C217  92CC  42C3  B4DF  B.Z.B..DB..LBC4_
560  42E4  78C6  40E2  150E  C1F8  4199  4481  9F58  BdxF@B...AxA.D..X
568  C210  B060  C213  1108  C21F  4AC4  C1D3  C333  B.PmB...B.JDAS03
570  42F4  B9BB  42F5  6ADB  40DB  EF0C  C196  F777  Bb9.BeJL@[N.A.w.
578  4462  EB4C  C21E  4AA7  C214  6C8C  C21E  54AA  D.mLB.J'B.L.B.T*
580  C215  F9E6  42E5  A1BB  42E6  5993  40D6  8BB7  B.vFBe!;BFY.@V.7
588  C1C7  EAAA  4484  4E6C  C210  6BBB  C213  C631  AGJ*D.NLB.K;B.F1
590  C21A  6F8C  C212  7B91  42E6  6F9F  42E7  2746  B.o.B.x.BFN.BG'F
598  4000  B4E2  C1B6  1555  4485  D2A3  C21E  D6E0  @P4BA6.UD.R$B.Em
5A0  C212  DE51  C21F  8B55  C214  3BYY  42E8  937C  B.^QB..UB.B.Bh..
5A8  42E9  6056  40CA  6AF5  C1E8  0333  4487  60C3  Bt`V@JJ0AH.3D.mC
5B0  C21F  7A2E  C212  8629  CF20  DA6E  C213  9099  B...B..)B ZnB...
5B8  42EA  C36F  42EB  8A33  40C3  D208  C1CE  85D0  BJC?Bk.3@CR.AN.I
5C0  44B9  163B  C222  55DB  C210  DE14  C222  E644  D..0B'ULB.^.B'FD
5C8  C210  78F6  42ED  0140  42E0  D62E  40BD  12ED  B..FBm.@BmX.@=.m
5D0  C1F6  3B33  448A  E715  C225  3CE7  C1ED  ECEF  AV;3D.G.BZ(GAMLO
5D8  C223  4A99  C1CB  D444  42EF  DD2B  42F0  B8AE  B@J.AKTDBo]!BpB.
5E0  40B5  C3EB  C1F9  9EEF  448C  AD11  C226  E91D  @5ChAv.ND.-.B&i.
5E8  C189  9122  C225  6C19  C1C9  06EE  42F3  DEC2  A9.'BZL.AI.nBs^B
5F0  42E4  BD76  40AE  BADD  C1EA  A111  448E  9CE4  Bt=vB.:JAJ!.D..D
5F8  C228  48DA  C1A8  08D6  C22C  66A2  C1DD  F4CC  B(HZA(.VB,F"A]tL
600  42F7  3ED8  42FB  1AE1  40A7  29AF  C212  6408  Bw)ZBx.A@')/B.D.
608  4490  8403  C227  A5F5  C1B3  C6B7  C226  F800  D...B'ZuA3F78&x.
610  C155  BY9Y  42FZ  DF3B  42F8  A90C  409F  CA2C  AU9.Bw_;Bx).@.J.
618  C1E1  5800  4492  49FC  C225  6999  C1BE  D992  AaX.D.I.BZ..A)Y.
620  C226  42DD  C192  E8B8  42EA  AB92  42FB  94D9  B&DJA.H.B.:.B..Y
628  4098  F773  C210  2E44  4494  74F0  C222  0EB4  @.wsB..DD.tpB".4
630  C1B9  0C3C  C222  2A44  C210  F92A  42FF  B7CE  A9.(B'*DB.v*B.ZN
638  4310  0B43  4090  C19A  C214  D0F7  4496  D568  C..C@.A.B.PwD.U.
640  C21D  ECFA  C197  B73B  C21B  AB11  C1D0  1A22  B.L.A..=B.(.AP."
648  4310  2062  4310  2E4D  4087  E201  C213  C1AA  C. BC..M@.B.B.A*
650  449Y  2A1C  C21C  1158  C17Y  2941  C21A  E45D  D.*.B..XAv)AB.tJ
658  C15C  0B8B  4310  1D7E  4310  2B77  407F  3808  A\C;C...C.+W@.8X
660  C214  03EC  449B  8566  C21A  F2DD  C12A  29F4  B..nD..FB.BJA*)t
668  C21A  0F55  C117  1333  4310  21F6  4310  30A2  B..UA..3C.!vC.0"
670  4076  779B  C214  3433  449D  FBBE  C219  96DC  @vw.B.43D..)B..\
678  4114  1A68  C219  7177  4130  F666  4310  44FC  A..hB.qwA0vFC.D.
680  4310  559F  406D  5D70  C215  D16A  4480  A0E5  C.U.@mJeB.Q&D.E
688  C217  A239  40D8  C9C0  C219  C2EE  BF2C  CCCC  D."9@XI@B.BN?,LL
690  4310  B2?F  4310  9366  4063  B373  C217  5319  C../C..F@c3sB.S.
698  44A3  500A  C212  900C  C12E  25C1  C214  9000  D#P.B...A.ZAB...
6A0  407C  9111  4310  A3BF  4310  B2EE  405A  0185  @...C.#?C.2N@Z..
6A8  C216  7C2A  44A5  F582  C198  F702  C1A8  3718  B..*DZU.A.W.A+7.
6B0  C19F  B20A  C1B4  E2AA  4310  BD10  4310  9C44  A.2*A4B*C...C..D
6B8  4050  762D  C216  A0F7  44AB  05E3  C135  792B  @Pv-B.-WD(UcA5y+
6C0  C211  2967  C13E  6199  C213  2E11  4310  8065  B.)gA)A.B...C..E
6C8  4310  928D  4046  0BE1  C21A  6988  44AB  F830  C...@F.AB.I.D+x=
6D0  C111  83BC  C216  DBAD  4162  A6EE  C219  89A6  A..(B.L-AB&NB..&
6D8  4310  9A58  4310  AE48  403A  B7F3  C21B  13EE  C..XC..H@:7sB..N
6E0  44A1  369B  C119  7B25  C21D  0F23  417A  1D55  D/6.A..ZB...A.JU
6E8  C220  D39C  4310  C109  4310  D4A2  402F  163E  B S.C.A.C.T"@/.)
6F0  C21C  47AA  44B2  B605  C12B  0441  C21C  FDFD  B.G*D26.A+.AB...
6F8  C1CF  0000  C215  BFFA  4310  C1CF  4310  D/BA  AO..B...C.AOC.W:
700  402?  9AE8  C21F  6A11  44D6  B04B  C125  34BE  @".HB.J.D6.KA%4)
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```
708  C218  4E48  C1B7  1B00  C21F  F530  4310  F437  B.NKA7x.B.00C.t7
710  4311  0C59  4015  29F4  C221  454C  44BA  950B  C..Y@.)tB!ELB%..
718  C119  311A  C219  86B4  4111  4199  C21E  3708  A.1.B.F4A.A.B.7X
720  4311  2465  4311  3B2A  3F6D  BC93  C224  6000  C.%.C.i*?m(.B%"J
728  44BE  E513  411B  33A2  C217  9A14  418A  7500  D)E.A.3"B...A.uJ
730  C1E3  0768  4310  DD70  4310  F519  BFB4  B1C7  A0.HC.3pC.u.?.1G
738  C225  3980  44C3  9918  417C  5877  C218  DD36  B49.DC..A.XwB.]6
740  4197  D61F  C218  5B90  4310  C7E6  4310  E853  A.VnB.X.C.GfC.hS
748  C018  FCF6  C22B  0811  44C8  D42F  4195  4A2A  @..vB+..0HT/A.J*
750  C218  7A2A  4159  CE66  C21A  662C  4310  F784  B..*AYNfB..,C.w.
758  4311  1A0F  C028  7E07  C22E  3AB8  44CE  66A1  C..._@+..B.:)DNf!
760  4161  709E  C218  C8CB  415E  44CC  C218  C064  AAp.B.H.A^DLB.@d
768  4310  F113  4311  1590  C03F  1A0A  C230  D0F7  C.q.C...@?..B0]w
770  44D4  91C7  4145  5BE1  C21A  7A34  4133  04CC  DT.GAE[aB..4A3.L
778  C219  9D12  4310  0E85  4311  0AB2  C054  DC0F  B...C.^.C..2@(\_
780  C238  6BCE  44DB  7193  C148  B4CD  C211  A2F1  B8HLDLq.AH.MB."q
788  C164  AAAA  C1F9  1FAA  4310  AF81  4310  0F97  Ad**Av.*C./IC._.
790  C06D  4901  C23C  E911  44E3  11DE  C1D2  6BF5  @mI.B(i.Dc.NAKku
798  C150  8D97  C1E2  6AAA  C153  F6F7  4310  201B  AP..AbJ*ASvwC. .
7A0  4310  5FB0  C088  F9F0  C245  3D08  ----  ----  C._0@.ypBE=.....
```

ATTACHMENT 2

OUTPUT DISK FILE (FROM PASS 1)

TEST NUMBER 0000
CAPE CANAVERAL AFS, FLORIDA
1515Z 18 JAN 1984

ALT GEOMM	DIR DEG	SPD MPS	TEMP K	TEMP CORR	PRESS MBS	DENSITY G/M3	RF MPS	VS MPS	SRR /SEC
20000	224	13	202.24	-.46	999.9999	999.9999	7.24	285.20	.999
21000	236	14	206.58	-.44	46.8581	79.0214	5.14	288.25	.003
22000	249	17	211.30	-.45	39.8551	65.7097	4.69	291.52	.005
23000	271	16	212.92	-.47	33.9738	55.5876	5.61	292.64	.006
24000	260	21	216.46	-.48	29.0207	46.7066	5.90	295.06	.006
25000	253	23	217.93	-.50	24.8342	39.7002	3.79	296.06	.003
26000	256	26	219.90	-.51	21.2844	33.7199	5.32	297.39	.003
27000	251	27	222.04	-.51	18.2718	28.6684	5.92	298.84	.003
28000	252	32	224.66	-.57	15.6962	24.3400	8.32	300.59	.005
29000	259	32	226.37	-.53	13.5159	20.8008	5.49	301.74	.003
30000	256	32	228.74	-.60	11.6488	17.7414	9.77	303.31	.001
31000	245	35	224.24	-.59	10.0374	15.5944	9.86	300.31	.007
32000	247	34	222.31	-.65	8.6278	13.5207	7.66	299.02	.001
33000	239	35	228.23	-.73	7.4280	11.3387	12.41	302.97	.005
34000	237	36	231.15	-.75	6.4130	9.6655	12.42	304.90	.001
35000	243	38	236.51	-.83	5.5516	8.1776	14.84	308.42	.004
36000	253	41	243.75	-.87	4.8231	6.8933	14.69	313.11	.008
37000	254	41	247.90	-.79	4.2067	5.9119	14.10	315.76	.001
38000	251	36	255.67	-.99	3.6791	5.0131	20.78	320.67	.006
39000	254	30	257.91	-.87	3.2274	4.3598	19.92	322.07	.006
40000	267	27	258.77	-.95	2.8329	3.8140	20.68	322.61	.007
41000	272	24	263.45	-1.07	2.4900	3.2927	23.06	325.51	.004
42000	252	17	265.83	-.95	2.1929	2.8739	22.54	326.98	.010
43000	199	16	264.26	-1.08	1.9314	2.5462	25.29	326.01	.015
44000	183	23	265.60	-1.24	1.7010	2.2312	27.06	326.84	.009
45000	183	29	268.07	-1.25	1.4997	1.9490	28.79	328.36	.006
46000	185	29	268.92	-1.41	1.3233	1.7142	31.89	328.88	.001
47000	185	22	272.06	-1.49	1.1687	1.4966	34.10	330.79	.002
48000	182	25	273.31	-1.45	1.0332	1.3170	36.56	331.55	.002
49000	174	24	269.69	-1.54	.9131	1.1795	37.86	329.35	.003
50000	163	26	268.58	-1.99	.8060	1.0455	42.69	328.66	.005
51000	160	26	270.55	-2.15	.7118	.9166	45.25	329.87	.001
52000	162	26	271.30	-2.24	.6288	.8075	47.32	330.33	.001
53000	167	26	270.95	-2.33	.5557	.7145	49.64	330.11	.002
54000	170	26	270.21	-2.63	.4909	.6329	54.41	329.66	.002
55000	177	24	268.94	-2.84	.4335	.5615	57.90	328.89	.004
56000	191	19	267.28	-2.97	.3826	.4987	60.46	327.87	.007
57000	214	15	263.20	-3.41	.3369	.4460	64.42	325.36	.008
58000	245	14	258.60	-3.91	.2966	.3995	68.68	322.50	.008
58129	249	14	258.01	-3.97	.2917	.3939	69.24	322.13	.008

MAXIMUM ALTITUDE 61559

TEST NUMBER 0000
CAPE CANAVERAL AFS, FLORIDA
1515Z 18 JAN 1984

PASS 2

ROCS 3

SUPER LOKI FWN-150

ALT GEOMA	DIR DEG	SPD MPS	TEMP K	TEMP CHAR	PRESS MBS	DENSITY G/M3	RF MPS	VS MPS	SHR /SEC
20000	224	13	202.24	-.46	999.9999	999.9999	7.24	285.20	.999
20250	230	14	204.33	-.45	53.0065	90.3771	3.23	286.67	.008
20500	240	11	205.53	-.45	50.8632	86.2151	5.67	287.51	.015
20750	236	10	206.82	-.44	48.8160	82.2270	3.68	288.42	.006
21000	236	14	206.58	-.44	46.8581	79.0216	5.14	288.25	.016
21250	234	18	207.78	-.45	44.9806	75.4187	2.76	289.08	.017
21500	244	19	209.02	-.47	43.1908	71.9885	6.64	289.94	.013
21750	247	18	211.25	-.45	41.4843	68.4129	3.96	291.49	.007
22000	249	17	211.30	-.45	39.8551	65.7097	4.69	291.52	.005
22250	253	17	211.40	-.46	38.2906	63.1007	6.00	291.59	.004
22500	261	18	211.98	-.45	36.7871	60.4611	2.97	291.99	.010
22750	272	18	212.68	-.46	35.3516	57.9083	5.27	292.47	.013
23000	271	16	212.92	-.47	33.9738	55.5876	5.61	292.64	.008
23250	263	16	213.94	-.48	32.6534	53.1739	5.64	293.33	.009
23500	253	18	215.04	-.47	31.3901	50.8551	5.27	294.09	.013
23750	253	20	215.50	-.47	30.1807	48.7912	5.42	294.40	.007
24000	260	21	216.46	-.48	29.0202	46.7066	5.90	295.06	.010
24250	264	21	217.10	-.48	27.9103	44.7882	5.28	295.49	.007
24500	263	21	217.25	-.49	26.8442	43.0420	7.36	295.60	.002
24750	258	22	217.23	-.48	25.8191	41.4074	5.77	295.58	.008
25000	253	23	217.93	-.50	24.8342	39.7002	3.79	296.06	.010
25250	252	24	218.80	-.52	23.8911	38.0410	7.82	296.64	.004
25500	254	25	219.41	-.52	22.9868	36.4983	8.59	297.06	.005
25750	256	25	219.91	-.51	22.1187	35.0402	7.50	297.40	.004
26000	256	26	219.90	-.51	21.2844	33.7199	5.32	297.39	.002
26250	254	26	221.15	-.53	20.4840	32.2684	6.80	298.24	.004
26500	252	26	221.91	-.53	19.7173	30.9546	7.59	298.75	.003
26750	251	27	222.06	-.53	18.9807	29.7784	8.52	298.85	.002
27000	251	27	222.04	-.51	18.2718	28.6684	5.92	298.84	.003
27250	253	29	221.71	-.52	17.5890	27.6380	6.21	298.61	.006
27500	253	30	221.78	-.54	16.9313	26.5959	7.07	298.66	.006
27750	253	31	222.97	-.56	16.3000	25.4677	7.83	299.46	.005
28000	252	32	224.66	-.57	15.6962	24.3400	8.32	300.59	.003
28250	253	32	225.66	-.57	15.1182	23.3394	8.23	301.27	.002
28500	255	32	226.16	-.57	14.5633	22.4331	8.96	301.60	.003
28750	256	32	226.47	-.59	14.0297	21.5623	12.15	301.80	.003
29000	259	32	226.37	-.53	13.5159	20.8008	5.49	301.74	.007
29250	263	33	226.44	-.58	13.0210	20.0326	8.76	301.78	.010
29500	262	33	226.85	-.60	12.5448	19.2657	9.25	302.05	.001
29750	261	33	228.03	-.62	12.0873	18.4670	11.55	302.84	.004
30000	256	32	228.74	-.60	11.6488	17.7414	9.77	303.31	.009
30250	251	32	228.28	-.57	11.2261	17.1325	8.23	303.00	.011
30500	248	33	227.10	-.57	10.8174	16.5943	9.29	302.22	.009
30750	245	34	225.53	-.56	10.4213	16.0978	8.99	301.18	.007
31000	245	35	224.24	-.59	10.0374	15.5944	9.86	300.31	.002
31250	246	34	223.52	-.66	9.6661	15.0659	14.15	299.83	.005
31500	249	34	222.96	-.62	9.3074	14.5432	10.18	299.45	.006
31750	248	34	222.54	-.62	8.9614	14.0289	9.28	299.17	.002
32000	247	34	222.31	-.65	8.6278	13.5207	7.66	299.02	.003
32250	245	34	223.54	-.72	8.3075	12.9470	10.19	299.84	.004
32500	243	34	225.44	-.76	8.0014	12.3648	13.68	301.12	.006

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32750	241	35	227.27	-.76	7.7084	11.8159	15.17	302.34	.006
33000	239	35	228.23	-.73	7.4280	11.3487	12.41	302.97	.005
33250	237	36	228.91	-.70	7.1588	10.8951	10.06	303.42	.004
33500	236	36	229.60	-.72	6.9001	10.4699	12.38	303.88	.004
33750	236	36	230.16	-.72	6.6517	10.0681	11.75	304.25	.003
34000	237	36	231.15	-.75	6.4130	9.6855	12.42	304.90	.002
34250	239	36	232.53	-.80	6.1836	9.2644	14.43	305.81	.004
34500	239	36	233.86	-.79	5.9644	8.8851	13.57	306.69	.002
34750	240	37	235.19	-.79	5.7536	8.5227	13.38	307.56	.004
35000	243	38	236.51	-.83	5.5516	8.1776	14.84	308.42	.008
35250	245	39	237.96	-.85	5.3580	7.8442	15.46	309.37	.008
35500	248	40	239.50	-.86	5.1719	7.5231	15.57	310.36	.008
35750	250	40	241.55	-.86	4.9942	7.2030	15.21	311.69	.008
36000	253	41	243.75	-.87	4.8231	6.8933	14.69	313.11	.008
36250	254	41	245.48	-.86	4.6603	6.6137	16.45	314.22	.004
36500	255	42	247.19	-.86	4.5031	6.3466	18.32	315.30	.004
36750	255	41	247.56	-.82	4.3524	6.1250	16.26	315.54	.002
37000	254	41	247.90	-.79	4.2067	5.9119	14.10	315.76	.002
37250	253	40	249.44	-.86	4.0669	5.6801	15.26	316.74	.005
37500	252	39	251.13	-.92	3.9322	5.4550	16.60	317.81	.005
37750	252	38	253.40	-.95	3.8035	5.2292	18.69	319.24	.006
38000	251	36	255.67	-.99	3.6791	5.0131	20.78	320.67	.006
38250	252	34	256.65	-.94	3.5604	4.8330	20.39	321.28	.008
38500	252	32	257.59	-.89	3.4455	4.6599	19.95	321.87	.008
38750	253	31	257.98	-.87	3.3347	4.5031	19.82	322.12	.006
39000	254	30	257.91	-.87	3.2276	4.3598	19.92	322.07	.004
39250	255	29	257.86	-.88	3.1239	4.2205	20.03	322.04	.005
39500	259	28	257.98	-.89	3.0236	4.0832	20.11	322.11	.008
39750	263	27	258.09	-.91	2.9266	3.9503	20.18	322.19	.008
40000	267	27	258.77	-.95	2.8329	3.8140	20.68	322.61	.007
40250	270	26	259.64	-1.00	2.7424	3.6798	21.32	323.15	.007
40500	273	25	260.63	-1.04	2.6550	3.5490	21.94	323.76	.005
40750	272	25	262.04	-1.06	2.5712	3.4184	22.50	324.64	.003
41000	272	24	263.45	-1.07	2.4900	3.2927	23.06	325.51	.003
41250	270	23	264.53	-1.05	2.4118	3.1763	23.17	326.18	.006
41500	267	21	265.29	-1.01	2.3365	3.0682	22.86	326.65	.009
41750	262	19	266.06	-.96	2.2635	2.9639	22.56	327.12	.009
42000	252	17	265.83	-.95	2.1929	2.8739	22.54	326.98	.016
42250	238	15	265.31	-.95	2.1245	2.7897	22.61	326.66	.017
42500	222	14	264.80	-.95	2.0583	2.7079	22.75	326.35	.017
42750	210	15	264.53	-1.02	1.9938	2.6258	24.02	326.18	.012
43000	199	16	264.26	-1.08	1.9314	2.5462	25.29	326.01	.012
43250	191	18	264.08	-1.14	1.8710	2.4682	26.44	325.90	.012
43500	188	19	264.59	-1.17	1.8125	2.3865	26.64	326.21	.008
43750	185	21	265.09	-1.21	1.7559	2.3075	26.65	326.52	.008
44000	183	23	265.60	-1.24	1.7010	2.2312	27.06	326.84	.008
44250	183	25	266.30	-1.24	1.6482	2.1562	27.40	327.27	.007
44500	183	26	267.03	-1.23	1.5971	2.0837	27.77	327.72	.007
44750	183	28	267.76	-1.23	1.5476	2.0136	28.13	328.16	.007
45000	183	29	268.07	-1.25	1.4997	1.9490	28.79	328.36	.003
45250	184	29	268.09	-1.29	1.4535	1.8888	29.66	328.36	.001
45500	185	29	268.10	-1.33	1.4086	1.8304	30.54	328.37	.001
45750	185	29	268.11	-1.37	1.3651	1.7738	31.41	328.38	.001
46000	185	29	268.92	-1.41	1.3233	1.7142	31.89	328.88	.002
46250	185	28	269.74	-1.44	1.2827	1.6567	32.37	329.37	.002
46500	185	28	270.55	-1.48	1.2433	1.6010	32.85	329.87	.002

46750	185	27	271.35	-1.51	1.2053	1.5474	33.36	330.36	.002
47000	185	27	272.06	-1.49	1.1687	1.4966	34.10	330.79	.002
47250	184	26	272.78	-1.48	1.1333	1.4474	34.85	331.22	.002
47500	184	26	273.49	-1.46	1.0989	1.3998	35.59	331.66	.002
47750	184	25	274.21	-1.45	1.0656	1.3538	36.33	332.09	.002
48000	182	25	273.31	-1.45	1.0332	1.3170	36.56	331.55	.003
48250	180	25	272.31	-1.46	1.0018	1.2817	36.75	330.94	.003
48500	179	24	271.31	-1.47	.9714	1.2473	36.94	330.33	.003
48750	177	24	270.32	-1.48	.9419	1.2139	37.13	329.73	.003
49000	174	24	269.69	-1.54	.9131	1.1795	37.86	329.35	.004
49250	171	24	269.41	-1.65	.8851	1.1445	39.07	329.18	.005
49500	169	25	269.13	-1.77	.8579	1.1105	40.27	329.00	.005
49750	166	25	268.85	-1.88	.8316	1.0775	41.48	328.83	.005
50000	163	26	268.58	-1.99	.8060	1.0455	42.69	328.66	.005
50250	162	26	268.69	-2.05	.7813	1.0123	43.46	328.85	.002
50500	162	26	269.44	-2.08	.7574	.9793	44.06	329.19	.001
50750	161	26	270.00	-2.12	.7343	.9474	44.65	329.53	.001
51000	160	26	270.55	-2.15	.7118	.9166	45.25	329.82	.001
51250	160	26	271.11	-2.19	.6900	.8867	45.84	330.21	.001
51500	160	26	271.44	-2.21	.6689	.8585	46.39	330.41	.000
51750	161	26	271.37	-2.23	.6486	.8326	46.65	330.37	.002
52000	162	26	271.30	-2.24	.6288	.8075	47.32	330.33	.002
52250	163	26	271.23	-2.25	.6097	.7831	47.78	330.28	.002
52500	164	26	271.16	-2.27	.5911	.7595	48.24	330.24	.002
52750	166	26	271.09	-2.28	.5731	.7366	48.70	330.20	.002
53000	167	26	270.95	-2.33	.5557	.7145	49.64	330.11	.002
53250	167	26	270.76	-2.41	.5387	.6931	50.83	330.00	.002
53500	168	26	270.58	-2.48	.5223	.6725	52.03	329.89	.002
53750	169	26	270.40	-2.56	.5063	.6524	53.22	329.78	.002
54000	170	26	270.21	-2.63	.4909	.6329	54.41	329.66	.002
54250	170	27	270.03	-2.71	.4759	.6140	55.61	329.55	.002
54500	171	26	269.72	-2.77	.4614	.5958	56.62	329.39	.003
54750	174	25	269.35	-2.80	.4472	.5784	57.26	329.14	.007
55000	177	24	268.94	-2.84	.4335	.5615	57.90	328.89	.007
55250	180	22	268.52	-2.87	.4201	.5451	58.54	328.63	.007
55500	183	21	268.11	-2.90	.4072	.5292	59.18	328.38	.007
55750	187	20	267.69	-2.94	.3947	.5137	59.82	328.12	.007
56000	191	19	267.28	-2.97	.3826	.4987	60.46	327.87	.007
56250	196	18	266.65	-3.03	.3708	.4844	61.22	327.48	.007
56500	201	17	265.50	-3.16	.3591	.4712	62.29	326.77	.008
56750	207	16	264.35	-3.28	.3478	.4584	63.35	326.07	.008
57000	214	15	263.20	-3.41	.3369	.4460	64.42	325.36	.008
57250	221	14	262.05	-3.53	.3264	.4339	65.49	324.65	.008
57500	229	14	260.90	-3.66	.3161	.4221	66.55	323.93	.008
57750	237	14	259.75	-3.78	.3062	.4107	67.62	323.22	.008
58000	245	14	258.60	-3.91	.2966	.3995	68.68	322.50	.008
58129	249	14	258.01	-3.97	.2917	.3939	69.24	322.13	.008

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MAXIMUM ALTITUDE 61559

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TEST NUMBER 0000

CAPE CANAVERAL AFS, FLORIDA

1515Z 18 JAN 1984

SUPER LOKI PWN-LOD

ALT FEET	DIR DEG	SPD KTS	TEMP K	TEMP CORR	PRESS MBS	DENSITY G/M3	RF KTS	VS KTS	SHR /SEC
66000	225	32	203.03	-.46	54.1962	92.9960	14.42	555.10	.999
67000	239	23	205.17	-.46	51.5245	87.4883	20.61	558.02	.012
68000	236	19	206.73	-.44	49.0046	82.5830	11.28	560.14	.007
69000	235	28	206.68	-.44	46.6190	78.5813	16.91	560.07	.015
70000	248	37	208.44	-.45	44.3550	74.1346	8.36	562.45	.016
71000	247	36	210.03	-.46	42.2184	70.0286	12.85	564.59	.009
72000	248	33	211.29	-.46	40.2037	66.2887	25.67	566.28	.005
73000	253	32	211.40	-.46	38.2878	63.0961	19.69	566.43	.005
74000	263	35	212.16	-.46	36.4660	59.8804	13.41	567.44	.011
75000	273	33	212.96	-.45	34.7381	56.8271	10.74	568.52	.010
76000	266	31	213.52	-.48	33.0963	53.9993	20.60	569.27	.007
77000	254	35	214.92	-.47	31.5406	51.1254	16.81	571.13	.013
78000	253	32	215.52	-.47	30.0649	48.5998	16.28	571.92	.007
79000	261	40	216.70	-.48	28.6637	46.0815	18.60	573.49	.010
80000	265	41	217.23	-.48	27.3334	43.8364	19.73	574.18	.004
81000	259	42	217.18	-.48	26.0661	41.8120	18.72	574.13	.007
82000	253	45	217.90	-.50	24.8587	39.7446	12.79	575.07	.010
83000	253	47	218.91	-.52	23.7130	37.7380	26.08	576.40	.004
84000	255	49	219.70	-.52	22.6240	35.8754	29.56	577.44	.004
85000	257	50	219.89	-.49	21.5875	34.2022	13.55	577.69	.003
86000	254	51	220.58	-.53	20.6005	32.4768	23.21	578.13	.004
87000	252	51	221.92	-.53	19.6643	30.8699	26.08	580.35	.003
88000	251	52	222.10	-.51	18.7724	29.4464	23.19	580.58	.002
89000	251	54	221.89	-.52	17.9210	28.1366	20.04	580.32	.004
90000	252	58	221.62	-.53	17.1074	26.8927	22.17	579.96	.006
91000	253	61	222.87	-.56	16.3324	25.5302	25.73	581.59	.005
92000	252	62	224.87	-.57	15.5962	24.1654	28.28	584.20	.003
93000	254	62	225.88	-.56	14.9014	22.9826	22.90	585.51	.003
94000	255	62	226.41	-.60	14.2379	21.9077	41.59	586.20	.002
95000	258	63	226.38	-.54	13.6048	20.9369	19.31	586.15	.005
96000	263	64	226.45	-.58	12.9999	19.9994	28.76	586.25	.010
97000	262	64	227.16	-.60	12.4230	19.0525	32.33	587.16	.002
98000	259	63	228.38	-.61	11.8739	18.1130	35.34	588.74	.006
99000	253	63	228.56	-.58	11.3508	17.3017	28.36	588.97	.010
100000	248	64	227.20	-.57	10.8495	16.6360	31.37	587.22	.010
101000	245	67	225.28	-.56	10.3670	16.0317	27.82	584.73	.007
102000	245	67	223.97	-.63	9.9027	15.4037	39.28	583.02	.001
103000	248	66	223.19	-.64	9.4572	14.7616	38.90	582.02	.005
104000	249	66	222.61	-.62	9.0306	14.1325	30.28	581.26	.002
105000	247	66	222.31	-.65	8.6225	13.5125	24.99	580.86	.003
106000	245	67	224.00	-.74	8.2340	12.8059	32.54	583.07	.005
107000	242	67	226.27	-.76	7.8668	12.1120	47.11	586.02	.006
108000	239	68	228.00	-.74	7.5181	11.4873	45.07	588.25	.005
109000	237	69	228.83	-.70	7.1870	10.9416	32.17	589.33	.005
110000	236	71	229.67	-.72	6.8717	10.4236	40.83	590.40	.004
111000	236	69	230.35	-.72	6.5713	9.9385	37.72	591.27	.003
112000	238	70	231.91	-.78	6.2856	9.4425	44.38	593.27	.004
113000	239	71	233.55	-.79	6.0141	8.9709	45.24	595.37	.003
114000	240	72	235.17	-.79	5.7559	8.5266	43.83	597.43	.003
115000	243	74	236.78	-.83	5.5104	8.1076	49.68	599.47	.008
116000	246	76	238.62	-.85	5.2776	7.7052	50.88	601.79	.008
117000	249	78	240.77	-.86	5.0560	7.3158	50.49	604.50	.008
118000	253	79	243.46	-.87	4.8457	6.9340	48.43	607.87	.008

119000	254	80	245.63	-.86	4.6467	6.5905	54.48	610.57	.004
120000	255	81	247.33	-.85	4.4566	6.2774	58.39	612.68	.002
121000	254	80	247.72	-.81	4.2755	6.0127	49.55	613.17	.002
122000	253	79	249.04	-.84	4.1024	5.7388	49.08	614.79	.004
123000	252	76	251.04	-.92	3.9372	5.4638	54.20	617.25	.005
124000	252	77	253.81	-.96	3.7807	5.1893	62.55	620.65	.006
125000	251	68	256.08	-.97	3.6311	4.9399	67.75	623.42	.007
126000	252	64	257.23	-.91	3.4888	4.7250	66.01	624.82	.008
127000	253	60	257.99	-.87	3.3523	4.5267	64.95	625.75	.007
128000	254	58	257.90	-.82	3.2215	4.3516	65.39	625.64	.004
129000	257	56	257.69	-.68	3.0958	4.1820	65.78	625.63	.006
130000	261	54	258.03	-.90	2.9750	4.0167	66.09	625.80	.008
131000	266	52	258.52	-.94	2.8592	3.8530	67.26	626.39	.008
132000	270	51	259.58	-1.00	2.7482	3.6884	69.82	627.67	.007
133000	273	49	260.85	-1.04	2.6419	3.5285	72.28	629.20	.005
134000	272	48	262.57	-1.06	2.5406	3.3709	74.50	631.27	.003
135000	272	46	264.22	-1.07	2.4432	3.2214	76.42	633.25	.003
136000	267	41	265.15	-1.01	2.3505	3.0883	75.19	634.37	.009
137000	262	37	266.08	-.96	2.2613	2.9607	73.97	635.48	.009
138000	249	32	265.70	-.95	2.1756	2.8526	74.01	635.03	.016
139000	230	28	265.06	-.95	2.0932	2.7511	74.30	634.26	.017
140000	213	29	264.62	-1.00	2.0137	2.6511	77.51	633.73	.014
141000	200	31	264.29	-1.07	1.9371	2.5535	82.58	633.33	.012
142000	190	35	264.15	-1.14	1.8635	2.4577	86.82	633.16	.011
143000	187	39	264.76	-1.19	1.7927	2.3589	87.65	633.90	.008
144000	184	43	265.38	-1.23	1.7246	2.2641	88.48	634.64	.008
145000	183	47	266.15	-1.24	1.6595	2.1722	89.65	635.56	.007
146000	183	51	267.03	-1.23	1.5969	2.0834	91.10	636.62	.007
147000	183	56	267.92	-1.23	1.5368	1.9983	92.55	637.67	.007
148000	184	57	268.08	-1.27	1.4791	1.9222	95.72	637.86	.002
149000	184	57	268.09	-1.32	1.4236	1.8500	99.22	637.88	.001
150000	185	57	268.11	-1.36	1.3703	1.7805	102.72	637.90	.001
151000	185	56	269.01	-1.41	1.3192	1.7084	104.79	638.96	.002
152000	185	55	270.00	-1.45	1.2700	1.6387	106.70	640.14	.002
153000	185	54	270.98	-1.50	1.2227	1.5719	108.62	641.31	.002
154000	185	52	271.89	-1.50	1.1775	1.5087	111.29	642.38	.002
155000	184	51	272.76	-1.48	1.1341	1.4485	114.27	643.41	.002
156000	184	50	273.63	-1.46	1.0923	1.3907	117.24	644.43	.002
157000	183	49	273.90	-1.45	1.0521	1.3381	119.57	644.74	.002
158000	181	48	272.68	-1.46	1.0132	1.2945	120.34	643.31	.003
159000	179	47	271.46	-1.47	.9758	1.2523	121.11	641.87	.003
160000	177	46	270.24	-1.48	.9398	1.2115	121.87	640.43	.003
161000	173	47	269.61	-1.57	.9048	1.1692	125.36	639.68	.004
162000	170	48	269.27	-1.71	.8711	1.1270	130.19	639.28	.005
163000	167	49	268.93	-1.85	.8386	1.0863	135.02	638.87	.005
164000	163	50	268.59	-1.99	.8073	1.0471	139.86	638.47	.005
165000	162	51	268.98	-2.06	.7773	1.0067	142.93	638.93	.002
166000	161	51	269.66	-2.10	.7484	.9668	145.31	639.74	.001
167000	160	51	270.34	-2.14	.7205	.9286	147.69	640.54	.001
168000	160	51	271.01	-2.18	.6938	.8918	150.07	641.34	.001
169000	160	51	271.44	-2.21	.6680	.8574	152.27	641.85	.000
170000	161	50	271.36	-2.23	.6433	.8259	154.12	641.75	.002
171000	163	50	271.27	-2.25	.6195	.7956	155.97	641.64	.002
172000	164	50	271.18	-2.26	.5966	.7664	157.82	641.54	.002
173000	166	50	271.10	-2.28	.5745	.7383	159.67	641.44	.002
174000	167	50	270.92	-2.34	.5532	.7114	163.41	641.23	.002

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ROCS 3

175000	168	50	270.70	-2.44	.5327	.6856	168.18	640.97	.002
176000	169	51	270.42	-2.53	.5130	.6607	172.96	640.70	.002
177000	169	51	270.25	-2.62	.4940	.6368	177.74	640.44	.002
178000	170	52	270.03	-2.71	.4757	.6137	182.51	640.17	.002
179000	172	51	269.67	-2.78	.4580	.5916	186.26	639.75	.003
180000	175	47	269.17	-2.82	.4409	.5706	188.82	639.15	.007
181000	179	44	268.66	-2.86	.4244	.5503	191.37	638.55	.007
182000	183	41	268.15	-2.90	.4086	.5308	193.93	637.95	.007
183000	187	38	267.64	-2.94	.3933	.5120	196.49	637.34	.007
184000	193	36	267.14	-2.98	.3786	.4938	199.05	636.74	.007
185000	199	33	266.01	-3.10	.3643	.4771	202.78	635.40	.008
186000	205	31	264.61	-3.25	.3504	.4613	207.05	633.72	.008
187000	213	29	263.21	-3.41	.3370	.4461	211.32	632.04	.008
188000	222	27	261.81	-3.56	.3242	.4314	215.58	630.36	.008
189000	232	27	260.41	-3.71	.3118	.4171	219.85	628.67	.008
190000	242	27	259.41	-3.86	.2999	.4034	224.11	626.97	.008
190714	249	27	258.01	-3.97	.2917	.3939	227.16	625.76	.008

MAXIMUM ALTITUDE 201965

PASS 1

ROCS 3

B-205

ATTACHMENT 3

CO-RAWINSONDE FILE (SIGNIFICANT AND MANDATORY)

ALTITUDE (FT)	WIND DIR (DEG.)	WIND SPD (KTS)	TEMPERATURE (DEG. C)	DEW POINT (DEG. C)	PRESSURE (MBS)	REF.INDEX (N-UNITS)	REL.HUM. (%)
4.88	0	0	16.60	16.60	1018.30	356.72	100.00
302.92	212	10	21.20	21.20	983.19	367.67	100.00
1433.84	226	10	14.40	14.40	862.62	306.86	100.00
2076.18	232	11	12.20	10.43	799.56	275.39	88.94
2363.82	233	12	11.30	5.07	772.66	251.24	65.48
2965.91	223	12	9.40	-.50	718.94	222.07	53.70
3184.36	209	14	7.40	2.31	700.25	227.90	70.04
3423.93	208	15	5.70	-4.42	680.18	210.41	48.05
3668.55	204	14	3.30	-3.55	660.12	208.25	60.69
3904.32	199	13	3.90	-23.36	641.27	184.12	11.48
4372.75	195	14	1.70	-23.71	605.27	175.33	13.01
5184.53	232	19	-5.10	-20.63	546.67	164.39	28.22
6322.50	244	19	-13.50	-34.98	472.06	142.79	14.31
6607.43	250	20	-16.00	-21.07	454.68	143.62	64.78
7469.68	242	27	-21.80	-40.84	405.18	126.09	15.84
7790.53	242	28	-24.10	-34.15	387.89	122.88	38.64
8100.28	242	29	-26.10	-45.24	371.76	117.41	14.46
8442.27	243	31	-28.40	-34.08	354.59	114.53	57.77
8978.05	245	32	-32.10	-44.43	328.96	106.64	27.89
9226.96	249	29	-38.40	-52.87	293.44	97.30	19.86
10911.19	248	31	-47.20	-58.05	248.21	85.41	27.14
12381.90	268	29	-59.90	-67.58	197.66	71.98	35.14
12692.06	268	32	-60.60	99.90	188.12	68.68	999.00
14422.55	267	37	-65.90	99.90	142.23	53.25	999.00
14643.37	263	38	-63.90	99.90	137.20	50.88	999.00
14965.16	257	38	-64.00	99.90	130.22	48.32	999.00
17233.61	260	27	-77.30	99.90	88.91	35.23	999.00
18877.58	254	13	-77.20	99.90	66.22	26.49	999.00
19240.20	246	15	-77.20	99.90	62.90	24.91	999.00
19562.20	258	17	-73.20	99.90	59.52	23.16	999.00
20524.18	257	13	-71.60	99.90	50.60	19.48	999.00
21956.46	258	18	-61.50	99.90	40.[illegible]	14.67	999.00
23930.12	251	19	-60.70	99.90	29.19	10.66	999.00
24974.05	259	21	-57.90	99.90	24.75	8.92	999.00
25752.40	260	26	-51.50	99.90	21.93	7.68	999.00
27418.86	260	28	-52.80	99.90	17.00	5.99	999.00
30390.43	261	36	-46.50	99.90	10.84	3.71	999.00
31267.98	250	36	-46.80	99.90	9.51	3.26	999.00
32334.12	245	36	-52.50	99.90	8.09	2.85	999.00
32820.56	243	36	-53.20	99.90	7.51	2.65	999.00
34481.99	246	41	-41.60	99.90	5.86	1.96	999.00
34962.29	999	999	-38.20	99.90	5.46	1.80	999.00

PASS 2
B-209

ROCS 3

14:40:32 29 MAR, 1984 CORAWINSONDE SIGNIFICANT DATA PAGE 1

ALTITUDE (FT)	WIND DIR (DEG.)	WIND SPD (KTS)	TEMPERATURE (DEG. C)	DEW POINT (DEG. C)	PRESSURE (MBs)	REL.HUM. (%)
161.30	212	5	18.98	18.98	1000.00	100.00
605.25	211	10	19.42	19.32	950.00	99.39
1070.19	222	11	16.51	16.51	900.00	99.99
1556.21	224	10	14.04	13.14	850.00	94.51
2067.89	232	11	12.22	10.44	800.00	88.91
2608.17	232	12	10.52	4.91	750.00	68.21
3181.16	209	14	7.38	2.22	700.00	69.77
3786.60	202	14	3.62	-14.12	650.00	34.44
4433.61	201	14	1.01	-23.97	600.00	13.36
5124.98	232	19	-4.73	-21.01	550.00	26.78
5866.51	238	19	-10.13	-31.07	500.00	16.13
6668.90	250	21	-16.45	-22.92	450.00	58.14
7544.52	242	28	-22.48	-38.86	400.00	22.57
8512.14	243	31	-29.14	-35.60	350.00	53.40
9595.38	248	29	-37.39	-50.22	300.00	24.93
10829.11	248	30	-46.88	-52.84	250.00	26.89
12266.09	267	29	-59.33	-67.08	200.00	35.01
13896.92	260	35	-61.96	99.90	175.00	999.00
14045.16	264	36	-64.52	99.90	150.00	999.00
15158.04	256	32	-65.95	99.90	125.00	999.00
16482.56	250	34	-74.43	99.90	100.00	999.00
17770.89	254	20	-75.91	99.90	80.00	999.00
18540.82	252	16	-76.89	99.90	70.00	999.00
19422.60	256	17	-74.21	99.90	60.00	999.00
20499.48	257	14	-70.92	99.90	50.00	999.00
21849.51	258	18	-61.50	99.90	40.00	999.00
23636.10	252	18	-60.06	99.90	30.00	999.00
24776.98	260	21	-57.98	99.90	25.00	999.00
26209.96	258	26	-51.81	99.90	20.00	999.00
28022.48	252	33	-51.58	99.90	15.00	999.00
30735.69	255	38	-46.52	99.90	10.00	999.00
33062.78	241	39	-50.32	99.90	7.00	999.00

PASS 2
B-210

RCCS 3

14:40: 0 29 MAR, 1984 CORAWINSONDE MANDATORY DATA PAGE

ATTACHMENT 4

HAMDATA OUTPUT FILE

TEST NUMBER 00000
CAPE CANAVERAL A.F.S. FLORIDA
1515Z 18 JAN 1984

SUPER LONI	DATASONDE			PWN-10A				
1961268	10	3	11	0	10	4	-26	09.999-99.999-9282
1962276	10	14	6	7	8	5	-71	09.999-99.999-9285
2000224	13	12	10	9	9	7	-71	09.999-99.999-9285
2000224	13	12	10	9	9	7	-71	05.524+19.516+1285
2100236	14	11	11	8	12	5	-62	04.686+17.902+1288
2176247	18	6	18	7	16	4	-62	04.140+16.823+1292
2200249	17	6	14	6	16	5	-62	03.986+16.571+1292
2267273	17	-2	18	1	17	3	-60	03.469+15.673+1293
2300271	16	1	16	0	16	6	-60	03.397+15.559+1293
2400260	21	5	20	4	20	6	-57	02.902+14.671+1295
2500253	23	10	20	7	22	4	-55	02.483+13.970+1296
2568256	25	7	25	6	25	9	-53	-12.234+13.539+1297
2600256	26	7	25	6	25	5	-53	-12.128+13.372+1297
2689251	27	9	25	9	25	6	-51	-11.858+12.914+1299
2700251	27	9	25	9	26	6	-51	-11.827+12.867+1299
2745252	30	10	29	9	28	7	-52	-11.707+12.683+1299
2800252	32	9	31	10	30	8	-48	-11.570+12.444+1301
2870255	32	11	31	8	31	14	-47	-11.414+12.175+1302
2900259	32	3	31	6	32	5	-47	-11.352+12.080+1302
3000256	32	5	32	8	32	10	-44	-11.165+11.774+1303
3100245	35	15	31	15	31	10	-49	-11.004+11.559+1300
3200247	34	9	27	13	31	8	-51	-18.628+01.352+1299
3300239	35	18	30	18	30	12	-45	-17.428+01.134+1303
3400237	36	19	28	19	30	12	-42	-16.413+09.665+0305
3500243	38	17	34	17	34	15	-37	-15.552+08.178+0308
3600253	41	13	37	12	39	15	-29	-14.823+06.893+0313
3700254	41	5	39	11	40	14	-25	-14.207+05.912+0316
3800251	36	17	34	12	34	21	-17	-13.679+05.013+0321
3861252	31	13	28	9	30	20	-15	-13.395+04.583+0322
3900254	30	8	27	8	29	20	-15	-13.228+04.360+0322
4000262	27	0	26	1	27	21	-14	-12.833+03.814+0323
4100272	24	-1	26	-1	24	23	-10	-12.490+03.293+0326
4181261	19	0	21	3	19	22	-7	-12.247+02.940+0327
4200252	17	3	18	5	16	23	-7	-12.193+02.874+0327
4300199	16	17	6	15	5	25	-9	-11.931+02.546+0326
4400183	23	25	-6	23	1	27	-8	-11.701+02.231+0327
4500183	29	31	-4	29	2	29	-5	-11.500+01.949+0328
4600185	29	24	13	29	3	32	-4	-11.323+01.714+0329
4700185	27	31	8	27	2	34	-1	-11.169+01.497+0331
4800182	25	27	-3	25	1	37	0	-11.033+01.317+0332
4900174	24	15	-9	24	-2	38	-3	-29.131-11.180+0329
5100160	26	26	-7	25	-9	45	-3	-27.118-19.166-1330
5200162	26	25	-6	25	-8	47	-2	-26.289-18.075-1330
5300167	26	25	-6	25	-6	50	-2	-25.557-17.145-1330
5500177	24	22	0	24	-1	58	-4	-34.335-15.615-1329
5700214	15	11	10	12	8	64	-10	-33.369-14.460-1325
5818194	18	16	6	18	5	61	-6	-33.742-14.883-1328
2051240	10	8	8	5	9	5	-67	05.000+18.454+1288
2367253	20	5	20	6	19	5	-58	03.000+14.849+1294
2626253	26	8	24	8	25	6	-51	-12.000+13.141+1299

PASS 2
B-213
RDCS 3

5083247	34	15	31	15	31	10	49	-11.000+11.554+1300
4418466	46	19	31	20	30	11	-44	-17.000+01.063+1304
3549150	40	13	36	14	38	15	-52	-15.000+07.214+0312
4926240	20	-3	26	5	27	20	-15	-13.000+04.051+0322
4238211	15	14	8	13	8	24	9	-12.000+02.634+0326
4283180	25	23	5	25	6	37	-1	-11.000+01.280+0331
5065160	26	26	-6	25	-9	46	2	-27.000-19.004-1330
5332169	26	25	-4	26	-5	54	-6	-35.000-16.444-1330
5508185	20	19	3	20	2	60	-5	-34.000-15.202-1328
5236242	14	-6	13	6	12	68	-14	-43.000-14.035-1323

01

CAPE CANAVERAL AFS, FLORIDA
1015Z 18 JAN 1984

ALT MI	WDIR	MPS	TEMP	DEW PT	PRESS	RH
000049	212	002	189	189	10000	100
000184	211	005	194	193	09500	099
000326	222	005	165	165	09000	099
000474	224	005	140	131	08500	094
000630	232	005	122	104	08000	088
000794	232	006	105	049	07500	068
000969	209	007	073	022	07000	069
001154	202	007	046	14J	06500	034
001351	201	002	010	23R	06000	013
001562	237	009	04P	211	05500	026
001788	238	009	10J	311	05000	016
002032	250	010	16M	22R	04500	058
002299	242	014	22M	380	04000	022
002594	243	015	29J	350	03500	053
002924	248	014	37L	50K	03000	024
003300	248	015	46Q	570	02500	026
003738	262	014	59L	621	02000	035
004291	260	018	61R	999	01750	999
004880	264	018	64N	999	01500	999
004620	256	019	65R	999	01250	999
005023	250	017	74M	999	01000	999
005416	254	010	75R	999	00800	999
005651	252	008	76Q	999	00700	999
005921	256	008	74K	999	00600	999
006248	257	007	70R	999	00500	999
006659	258	009	61N	999	00400	999
007204	252	009	60!	999	00300	999
007852	260	010	57K	999	00250	999
008288	258	013	51Q	999	00200	999
008856	252	016	51N	999	00150	999
009368	255	019	46N	999	00100	999
010077	241	020	50L	999	00070	999

ALT MI	WDIR	MPS	TEMP	DEW PT	PRESS	IR
000001	000	000	166	166	101830	356
000093	212	005	211	212	098319	367
000437	226	005	143	144	086261	306
000632	232	005	121	104	079955	275
000720	233	006	113	050	077265	251
000904	223	006	093	004	071893	227

PASS 2

ROCS 3

B-214

000970	209	007	073	023	070025	227	
001043	208	007	056	04M	068017	210	
001118	204	007	033	03N	066012	208	
001190	199	006	038	23L	064126	184	
001332	195	007	016	23F	060526	175	
001580	232	009	053	20D	054666	164	
001927	244	009	13N	34R	047205	142	
002013	250	010	161	21I	045468	143	
002276	242	013	21D	40D	040517	126	
002374	242	014	24J	34J	038788	122	
002468	242	014	26J	45K	037176	117	
002573	243	015	28L	34I	035459	114	
002736	245	016	32J	44M	032896	106	
002980	249	014	38L	52D	029344	097	
003325	248	015	47J	58I	024820	085	
003724	268	014	58D	67N	019765	071	
003868	268	016	60D	999	018811	068	
004395	262	019	65D	999	014222	053	
004463	263	019	63D	999	013720	050	
004561	257	019	64I	999	013022	048	
005252	260	013	77L	999	008890	035	
005760	254	006	77D	999	006671	026	
005864	246	007	77J	999	006269	024	
005962	258	008	73D	999	005951	023	
006255	257	006	71D	999	005059	019	
006692	258	009	61N	999	003999	014	
007293	251	009	60D	999	002919	010	
007612	259	010	57D	999	002474	008	
007849	260	013	51N	999	002193	007	
008352	260	014	52D	999	001699	005	
009263	261	018	46N	999	001083	003	
009530	250	018	46D	999	000950	003	
009855	245	018	52N	999	000809	002	
010003	243	018	53J	999	000751	002	
010510	246	021	41D	999	000585	001	
010656	999	514	38J	999	000546	001	

PASS 2
T-215

ROCS 3

ATTACHMENT 5

ROCOB OUTPUT FILE

```
RRXX 18151 01984 74794 91011 63111
20527 27013 97777 21567 24014 91790 27562 25017 91657 28560
27016 91556 24557 26021 91467 25555 25023 91397 26553 26026
91337 27551 25027 91787 28548 25032 91243 29547 26032 91208
30544 26032 91177 31549 25035 91156 32551 25034 91135 33545
24035 91113 34542 24036 92967 35537 24038 92818 36529 25041
92689 37525 25041 92591 38517 25036 92501 39515 25030 92436
40514 27027 92381 41510 27024 92329 42507 25017 92287 43509
20016 92255 44508 18023 92223 45505 18029 92195 46504 19029
92171 47501 19027 92150 48000 18025 92132 49503 17024 92118
50505 16026 92105 51503 16026 93917 52502 16026 93808 53502
17026 93715 54503 17026 93633 55504 18024 93562 56506 19019
93499 57510 21015 93446 58515 25014 93400
11567 50205 24010 11558 30236 25020 11551 20262 25026 11549
10308 24034 11544 07331 24036 11532 05354 25040 11515 03392
26028 11502 02423 21015 11501 01478 18025 22502 07506 16026
22503 05533 17026 22505 04550 19020 22514 03573 24014
```

PASS 2
B-219

ROCS 13

ATTACHMENT 6

PROGRAM LISTING

```
C
C       ROCKET#2
C       PASS 2 OF THE ROCKET REDUCTION PROGRAM. OUTPUTS THE HAMDATA
C       FILE AND THE TELETYPE (CODER) FILE.
C
        INCLUDE "DATA&2"
        DATA IOU1,IOU2,IOU3,IOU4/1,2,3,4/
        DATA PL/1.69897,1.47712,1.30102,1.0,
     *  0.84509,0.69897,0.47712,0.30102,0.0,
     *  -0.1549,-0.30102,-0.39794,-0.52287,-0.69897,-1.0,
     *  -1.1549,-1.30102,-1.52287,-1.69897,-2.0,
     *  -2.1549,-2.30102,-2.52287,-2.69897,-3.0,
     *  -3.1549,-3.30102,-3.52287,-3.69897,-4.0,
     *  -4.1549,-4.30102,-4.52287,-4.69897,-5.0/
        DATA IAI,IKT,IMR,IEW,ICW/9,1,1,31,1/
        DATA IND,JND,I76,I0/
C
C       INITIALIZE THE FILES
C
        DELETE "HAMDATA"
        DELETE "CODEDATA"
        TYPE "(32)(36)          ROCKET REDUCTION - PASS 2(12)(12)(12)"
        PAUSE "MOUNT REDUCTION DISK ON DRIVE 1"
        CALL INIT("DP1")
C
C       READ SAVE FILE
C
        OPEN 20,"ROC&SAVE",LEN=80,ATT="L"
        READ(20)IH1,IH2,IM1,IM2,RAWINDAY,RAWINMONTH,RAWINYEAR,
     *  (IDTYPE(I),I=1,3),(STATION1D(I),I=1,15),ROCKTIME,IDAY,
     *  MONTH,IYR,GRAT,RE,ISONDE,IOU3,STANUM,IMON
        CLOSE 20
        IF(ISONDE.EQ."88")IND=1
  100   WRITE(10,1)
        READ(11,2)INPUT
        IF(INPUT.EQ."CN")IOU3=10
        IF(INPUT.EQ."PR")OPEN IOU3,"QTY:2",ATT="FL",LEN=221
        IF(INPUT.NE."CN".AND.INPUT.NE."PR")GOTO 100
C
C       COMPUTE AND OUTPUT HAMDATA
C
        CALL ETFORM(ROCKTIME)
C
C       COMPUTE AND OUTPUT TELETYPE (CODER) DATA
C
        CALL ROCOB(ROCKTIME)
C
        CALL RELEASE("DP1",IER)
        STOP
C
    1   FORMAT(/"(13)OUTPUT TO CONSOLE OR PRINTER (CNS/PRT): ...",
     *  3("(10)"),Z)
    2   FORMAT(A2)
C
        END
```

14: 1: 5 29 MAR, 1984 ROCKET REDUCTION PASS #2 - MAIN ROUTINE PAGE 1

```
      REAL MONTH
      DOUBLE PRECISION GRAT,RE
      INTEGER STATIONID(15),RAWINDAY,RAWINMONTH,RAWINYEAR
      COMMON/DATA/X,Y,Z,IND0,IND1,IA1,STATIONID,IK1,IMR,
     *  ICW,IEW,IH1,IH2,IM1,IM2,RAWINDAY,RAWINMONTH,RAWINYEAR,
     *  IDTYPE(3),IHR,IMIN,IDAY,MONTH,IYR,GRAT,RE,IOU1,IOU2,IOU3,
     *  IOU4,FL(35),H,DX,DY,I,DT,P,F-IMON,STANUM
```

```
      SUBROUTINE ETFORM(ROCKTIME)
      INCLUDE 'DATA82'
      DIMENSION H4(20),X4(20),Y4(20),UX4(20),UY4(20),T4(20),UT4(20),
     *  P4(20),E4(20)
C
C     OUTPUT BASELINE DATA
C
      OPEN IOU4,'NAMDATA',LEN=80,ATT='L'
      OPEN IOU2,'TAPE2',LEN=36
      IH=II=9999
      IP=99999
  100 READ(IOU2)H,X,Y,UX,UY,T,UT,P,E
      IF(P.GT.999..OR.H.LT.20000.)GOTO 100
      IH=((GRAT*(RE+H)/(RE+H))+5.)/10.
      IF(P.LT.999.)IP=10.**P*100.+.5
      IF(T.LT.999.)II=(T-273.15)*10.+.5
      WRITE(10,1)IH,IP,II
    1 FORMAT(I4,I5,I4)
      REWIND IOU2
      WRITE(IOU4,5)
    5 FORMAT(1X)
C
C     WRITE HEADER DATA
C
      WRITE(IOU4,2)(IDTYPE(I),I=1,3),STATIONID,ROCKTIME,IDAY,
     *  MONTH,IYR
    2 FORMAT("TEST NUMBER  "3A2/15A2/A4"7  "I2,1X,A4,I4,//
     *  "SUPER LOKI  DATASONDE PWN=10A")
C
C     COMPUTE 1000 METER DATA AND PICK SIGNIFICANT LEVELS
C
C     INITIALIZE
C
  115 CONTINUE
      H=0.0
      TX=0.0
      TLP=0.0
      DT=0.0
      ICNT=0
      IFLAG=0
      JP=0
      IBEG=1
      IP=1
      IEND=1
      I1=1
      S1=999.9
C
      DO 51 I=1,20
  300 READ(IOU2,END=97)H4(I),X4(I),Y4(I),UX4(I),UY4(I),T4(I),UT4(I),
     *  P4(I),E4(I)
      IF(I.GT.1.AND.H4(I).LE.H4(I-1))GOTO 300
      IF(H4(I).LT.1.)GOTO 115
      IF(I.NE.1)GOTO 17
C
C     INITIALIZE MAXIMUM AND MINIMUM TEMPERATURES
C
```

```
      IMX=T4(I)
      IMN=T4(I)
      IS1=I
      IS2=1
      J=H4(I)/1000.
      HL=J
      H1=HL*1000.+1000.
12    IF(IMX.GE.T4(I))GOTO 13
      IMX=T4(I)
      IS1=I
13    IF(IMN.LE.T4(I))GOTO 15
      IMN=T4(I)
      IS2=I
15    IF(H4(I).GE.H1)GOTO 30
51    CONTINUE
C
30    IB=IT
      IF(IS1.LT.IS2)GOTO 16
      IF(IS).EQ.IS2)IFLAG=ICNT=3
C
C     MINIMUM TEMPERATURE ROUTINE
C
29    IF(IFLAG.EQ.1)GOTO 52
      IF(IFLAG.EQ.3.AND.ICNT.GT.1)GOTO 31
      IT=IS2
      IF(IT.EQ.I)GOTO 28
      IFLAG=1
      IF(IS2.EQ.1.OR.IS2.EQ.I)GOTO 27
      IF(ICNT.GE.1)GOTO 28
      GOTO 18
27    ICNT=ICNT+2
C
C     MAXIMUM TEMPERATURE ROUTINE
C
16    IF(IFLAG.EQ.2)GOTO 52
      IF(IFLAG.EQ.3.AND.ICNT.GT.1)GOTO 31
      IT=IS1
      IF(IT.EQ.I)GOTO 28
      IFLAG=2
      IF(IS1.EQ.1.OR.IS1.EQ.I)GOTO 17
      IF(ICNT.GE.1)GOTO 28
      GOTO 18
17    ICNT=ICNT+2
      GOTO 29
18    IBEG=1
      GOTO 28
31    IT=I
      IB=IP
      IBEG=IEND
28    IB=IP
      IEND=IT
C
C     SELECT A-SIGNIFICANT LEVEL
C
54    CONTINUE
      DO 60 IP=IBEG,IEND
```

```
      TX=(H4(IP) H4(IB))/(H4(I1) H4(IB))
      TLP=TX*(T4(I1)-T4(IB))+T4(IB)
      DT=ABS(TLP-T4(IP))
      IF(IP.EQ.1)GOTO 53
      IF(DT.GE.2.)GOTO 40
   40 CONTINUE
      IP=IP-1
   46 IB=IP
      IBEG=IB
      IF(H4(IP).GT.H1)GOTO 53
      H=H4(IP)/10.
      PH=H+.5
      X=X4(IP)
      Y=Y4(IP)
      P=P4(IP)
      F=F4(IP)
      T=T4(IP)
      UX=UX4(IP)
      UY=UY4(IP)
      UT=UT4(IP)
      IF(T4(IP).GT.998.)GOTO 41
      IF((ABS(T4(IP)-ST)).LT.2.)GOTO 41
C
      CALL CUDIT
C
   41 JP=IP
      ST=T4(IP)
      IF(DT.GE.2.)GOTO 54
      IF(IS1.GT.IT.OR.IS2.GT.IT)IEND=IS1
      IF(IS1.GT.IT.OR.IS2.GT.IT)I1=IS1
      IF(IT.NE.I)GOTO 52
      IF(IBEG.EQ.I)GOTO 53
      GOTO 54
   52 IBEG=IEND
      IB=IEND
      IEND=1
      IT=I
      GOTO 54
C
C     OUTPUT A MANDATORY LEVEL
C
   53 RAT=(H1-H4(IP))/(H4(IP-1)-H4(IP))
      H=H1/10.
      X=VALUE(RAT,X4(IP-1),X4(IP))
      Y=VALUE(RAT,Y4(IP-1),Y4(IP))
      T=VALUE(RAT,T4(IP-1),T4(IP))
      P=VALUE(RAT,P4(IP-1),P4(IP))
      F=VALUE(RAT,F4(IP-1),F4(IP))
      UX=VALUE(RAT,UX4(IP-1),UX4(IP))
      UY=VALUE(RAT,UY4(IP-1),UY4(IP))
      UT=VALUE(RAT,UT4(IP-1),UT4(IP))
      IF(IP.EQ.JP)GOTO 115
C
      CALL CUDIT
C
      ST=T4(IP)
```

```
      BACKSPACE IOU2
      GOTO 115
C
C     OUTPUT LAST DATA POINT
C
97    BACKSPACE IOU2
      BACKSPACE IOU2
      READ(IOU2)H,X,Y,UX,UY,T,UT,P,F
      H=H/10.
C
      CALL CODIT
C
      REWIND IOU2
C
C     START CONSTANT PRESSURE LEVELS
C
      J=1
      READ(IOU2)H1,X1,Y1,UX1,UY1,T1,UT1,P1,F1
200   READ(IOU2,END=206)H2,X2,Y2,UX2,UY2,T2,UT2,P2,F2
201   IF(P1.GE.999.)GOTO 204
      IF(J.EQ.24.OR.J.EQ.29.OR.J.EQ.34)GOTO 202
      IF(PL(J).GT.P1)GOTO 202
      GOTO 203
202   J=J+1
      GOTO 201
203   IF(PL(J).GT.P2)GOTO 205
204   H1=H2
      X1=X2
      Y1=Y2
      UX1=UX2
      UY1=UY2
      T1=T2
      UT1=UT2
      P1=P2
      F1=F2
      GOTO 200
205   RAT=(PL(J)-P2)/(P1-P2)
      H=VALUE(RAT,H1,H2)
      X=VALUE(RAT,X1,X2)
      Y=VALUE(RAT,Y1,Y2)
      UX=VALUE(RAT,UX1,UX2)
      UY=VALUE(RAT,UY1,UY2)
      T=VALUE(RAT,T1,T2)
      UT=VALUE(RAT,UT1,UT2)
      F=VALUE(RAT,F1,F2)
C
C     CONVERT GEOMETRIC HEIGHT TO GEOPOTENTIAL HEIGHT
C
      H=GRAT*(RE*H)/(RE+H/10.
      P=PL(J)
C
      CALL CODIT
C
      GOTO 204
206   CLOSE IOU2
C
```

```
      CALL RDRAWIN

      CLOSE 1004
      RETURN
      END
```

```
      SUBROUTINE CODIT
      INCLUDE 'DATAS2'
      DIMENSION IS(9)
      INTEGER*4OUT(3)
      DATA IS/'+3','+2','+1','+0','-1','-2','-3','-4','-9'/
      IKND(A)=IFIX(SIGN((ABS(A)+.5),A))
      IF(PH.EQ.0)RETURN
      DIR=WDIR(X,Y)
      SPD=WSPD(X,Y)
      IF(X.LT.999.)GOTO 102
      X=9999.
      Y=9999.
      UX=9999.
      UY=9999.
      GOTO 106
  102 X=-X
      UX=-UX
      Y=-Y
      UY=-UY
  106 IF(T.LT.999.)GOTO 108
      T=9999.
      TC=999.
      VS=999.
      GOTO 109
  108 CONTINUE
      VS=331.45*SQRT(T/273.15)
      T1=T
      T=T-273.15
      UT=UT-273.15
      TC=T-UT
  109 PS=DS=99.99999
      IF(P.LT.999.)PS=10.**P
      IF(T.NE.9999.)DS=(PS/T1)*348.38
      D=PS
      K=0
      DO 10 I=1,2
      D=D+.000009
      A=10000.
      B=1000.
      C=.001
      IC=0
      IF(D.LE.99.)GOTO 2
      D=9.999
      K=IS(9)
      GOTO 5
    2 IF(D.LE.A.AND.D.GE.B)GOTO 3
      GOTO 4
    3 IC=IC+1
      D=D*C
      K=IS(IC)
      GOTO 5
    4 A=A/10.
      B=B/10.
      C=C*10.
      IC=IC+1
      GOTO 2
```

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PASS 2 ROCS 3

```
    5       IF(I.EQ.1)GOTO 6
            DS=D
            I2=K
            GOTO 10
    6       FS=D
            I1=K
            D=DS
            K=0
   10       CONTINUE
            IDIR=IRND(DIR)
            CALL EFFZERO(IDIR,3,OUT(1))
            WRITE(1004,110)IRND(H),OUT,IRND(SPD),IRND(U),IRND(UX),
           *IRND(Y),IRND(X),IRND(ABS(F)),IRND(T),IRND(TC),FS,I1,DS,I2,
           *IRND(VS)
  110       FORMAT(I5,3I1,I3,4I4,I3,I4,I3,2(F5.3,A2),I3)
            EH=H
            RETURN
            END
```

```
      SUBROUTINE RDRAWIN
      INCLUDE 'DATA52'
      INTEGER OUTARRAY(27)
C
C     READS CD-RAWINSONDE DATA FOR INPUT TO THE ARCHIVING AND
C     PUBLICATION FORMATTING PROGRAM. OUTPUTS MANDATORY AND
C     SIGNIFICANT DATA ONLY.
C
      WRITE(IOU4,1)(STATIONID(I),I=1,15),IH1,IH2,IM1,IM2,RAWINDAY,
     *MONTH,RAWINYEAR
    1 FORMAT(4X,'01'///5A2/4I1'Z'2X,I2,1X,A4,1X,I4/)
C
C     OPEN MANDATORY FILE, WRITE MANDATORY COLUMN HEADINGS, READ
C     AND WRITE MANDATORY DATA.
C
      WRITE(IOU4,2)
    2 FORMAT('ALT   MT   WDIR   MPS    TEMP   DEW PT   PRESS   RH',
     *T80,'9')
      OPEN 5,'DP1:MANDATORY',ATT='R',LEN=24
      DO 100 I=1,300
      READ(5,END=110)XH,IXD,IXS,XT,XDP,XP,XRH
      XH=XH*0.3048
      IXH1=XH/100.
      IXH2=AMOD(XH,100.)
      IXS=IXS*0.514792
      JT=XT*10.
      JTD=XDP*10.
      IXP=XP*10.
      IXRH=XRH
      CALL TSIGN(JT,JT1)
      CALL TSIGN(JTD,JTD1)
      CALL LEFTZERO(IXH1,4,OUTARRAY(1))
      CALL LEFTZERO(IXH2,2,OUTARRAY(5))
      CALL LEFTZERO(IXD,3,OUTARRAY(7))
      CALL LEFTZERO(IXS,3,OUTARRAY(10))
      CALL LEFTZERO(JT,2,OUTARRAY(13))
      OUTARRAY(15)=JT1
      CALL LEFTZERO(JTD,2,OUTARRAY(16))
      OUTARRAY(18)=JTD1
      CALL LEFTZERO(IXP,5,OUTARRAY(19))
      CALL LEFTZERO(IXRH,3,OUTARRAY(24))
      WRITE(IOU4,3)(OUTARRAY(J),J=1,26)
    3 FORMAT(6I1,3X,3I1,2X,3I1,3X,2I1,R1,5X,2I1,R1,4X,5I1,
     *2X,3I1,T79,'1')
  100 CONTINUE
  110 CLOSE 5
C
C     OPEN SIGNIFICANT FILE, WRITE SIGNIFICANT COLUMN HEADINGS,
C     READ AND WRITE SIGNIFICANT DATA.
C
      OPEN 5,'DP1:SIGNIFICAN',ATT='R',LEN=28
      WRITE(IOU4,4)
    4 FORMAT('ALT   MT   WDIR   MPS    TEMP   DEW PT   PRESS   IR',
     *T80,'9')
      DO 200 I=1,300
      READ(5,END=210)XH,IXD,IXS,XT,XDP,XP,BIR,RH
```

PASS 2 B-232

ROCS 3

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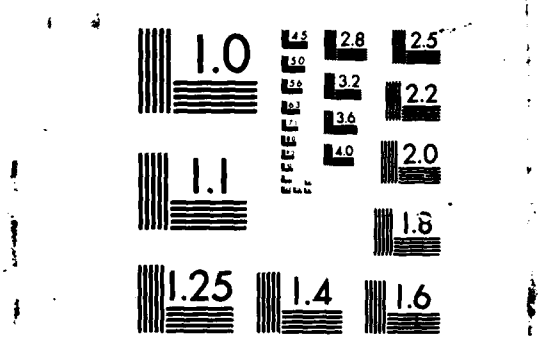
```
      XH=XH*0.3048
      IXH1=XH/100.
      IXH2=AMOD(XH,100.)
      IXS=IXS*0.514792
      J1=X1*10.
      JTD=XDP*10.
      XP=XP*100.
      IXP1=XP/100.
      IXP2=AMOD(XP,100.)
      IR=RIR
      CALL ISIGN(JT,JT1)
      CALL ISIGN(JTD,JTD1)
      CALL LEFTZERO(IXH1,4,OUTARRAY(1))
      CALL LEFTZERO(IXH2,2,OUTARRAY(5))
      CALL LEFTZERO(IXD,3,OUTARRAY(7))
      CALL LEFTZERO(IXS,3,OUTARRAY(10))
      CALL LEFTZERO(JT,2,OUTARRAY(13))
      OUTARRAY(15)=JT1
      CALL LEFTZERO(JTD,2,OUTARRAY(16))
      OUTARRAY(18)=JTD1
      CALL LEFTZERO(IXP1,4,OUTARRAY(19))
      CALL LEFTZERO(IXP2,2,OUTARRAY(23))
      CALL LEFTZERO(IR,3,OUTARRAY(25))
      WRITE(IOU4,5)(OUTARRAY(J),J=1,27)
    5 FORMAT(6I1,3X,3I1,2X,3I1,3X,2I1,R1,5X,2I1,R1,4X,6I1,
     *  2X,3I1,F7.2,I1)
  200 CONTINUE
  210 CLOSE 5
      RETURN
      END
```

AD-A163 634 IRIG STANDARDS FOR RANGE METEOROLOGICAL DATA REDUCTION 5/5
PART 2 ROCKETSONDE(U) RANGE COMMANDERS COUNCIL WHITE
SANDS MISSILE RANGE NM INTER-R.. DEC 85
UNCLASSIFIED IRIG-STANDARD-352-85-[illegible] F/G 4/1 NL



```
      SUBROUTINE ROCOB(ROCKTIME)
      INCLUDE 'DATAS2'
      DIMENSION TT(6),PPP(6),HH(6),INTIND(3,4)
      INTEGER HHZTT(5),DDFFF(5),NDFFP(5),DD(7),FFF(6),WORD,OUT(1200)
      LOGICAL FINIS
      DATA FINIS,WORD/.FALSE.,0/
      DATA (INTIND(I,1),I=1,3)/' 9','99','99'/
      DATA (INTIND(I,2),I=1,3)/' 7','47','94'/
      DATA (INTIND(I,3),I=1,3)/' 7','88','61'/
      DATA (INTIND(I,4),I=1,3)/' 6','19','02'/
C
      IRND(A)=IFIX(SIGN((ABS(A)+.5),A))
C
      OPEN IOU4,'CODEDATA',LEN=80,ATT='L'
      OPEN IOU1,'ROCKETOUT',LEN=80,ATT='L'
C
C     GET POSITIONED AT THE BEGINNING OF THE 1000 METER OUTPUT
C
   50 READ(IOU1,1001)HH(1),DD(1),FFF(1),TT(1),PPP(1)
 1001 FORMAT(/////////1X,F7.0,2I6,F8.2,1/X,F9.4)
C
      ITOP2=2
      IBOT=2
      ITOP=2
   26 CONTINUE
      DO 35 IPNTR=IBOT,ITOP
      READ(IOU1,1000,END=30)HH(IPNTR),DD(IPNTR),FFF(IPNTR),
     * TT(IPNTR),PPP(IPNTR)
 1000 FORMAT(1X,F7.0,2I6,F8.2,17X,F9.4)
      TEST=AMOD(HH(IPNTR),1000.)
      IF(TEST.GT.0.9)GOTO 30
      IF(DD(IPNTR).NE.999.OR.FFF(IPNTR).NE.999.OR.
     * TT(IPNTR).NE.999.99)GOTO 35
   30 FINIS=.TRUE.
      ITOP2=IPNTR-1
      IF(ITOP2.LT.1)GOTO 17
      GOTO 36
   35 CONTINUE
C
   36 DO 16 INDX=1,ITOP2
C
C     HHZTT - HEIGHT, TEMP INDICATOR, AND TEMPERATURE
C
      IF(TT(INDX).GT.998.)GOTO 10005
      WORKT=TT(INDX)-273.15
      IT=IRND(WORKT)
      IZ=' 6'
      IF(IT.GE.-99)IZ=' 5'
      IF(IT.GE.0)IZ=' 0'
      HHZTT(3)=IZ
      IT=IABS(IT)
      HHZTT(5)=MOD(IT,10)+60K
      HHZTT(4)=IT/10+60K
      GOTO 10007
10005 HHZTT(5)=' /'
      HHZTT(4)=' /'
```

```
            HHZ11(3)=' /'
      10007 IH=HH(INDA)/1000.
            HHZ11(2)=MOD(IH,10)+60K
            HHZ11(1)=IH/10+60K
      C
      C     DDFFF    WIND DIRECTION AND SPEED
      C
            IF(FFF(INDA).GT.998)GOTO 10011
            IWORKF=FFF('NDX)
            DDFFF(5)=MOD(IWORKF,10)+60K
            IWORKF=IWORKF/10
            DDFFF(4)=MOD(IWORKF,10)+60K
            DDFFF(3)=IWORKF/10+60K
            GOTO 10018
      10011 DDFFF(5)=' /'
            DDFFF(4)=' /'
            DDFFF(3)=' /'
      10018 IF(DD(INDA).GT.998)GOTO 10008
            IWORKD=DD(INDX)+5.
            IF(IWORKD.GT.360)IWORKD=IWORKD-360
            IWORKD=IWORKD/10
            IF(IWORKD.EQ.0)IWORKD=36
            DDFFF(2)=MOD(IWORKD,10)+60K
            DDFFF(1)=IWORKD/10+60K
            GOTO 10013
      10008 DDFFF(2)=' /'
            DDFFF(1)=' /'
      C
      C     NDPPP - GROUP INDICATOR, POWER OF 10 INDICATOR, AND DENSITY
      C
      10013 NDPPP(1)=' 9'
            IF(PPP(INDX).GT.998.)GOTO 10016
            TESTP=100.
            DO 10014 IP=1,10
            IF(PPP(INDX).GE.TESTP)GOTO 10015
            TESTP=TESTP/10.
      10014 CONTINUE
            GOTO 10016
      10015 IP=IP-1
            IWORKD=FFF(INDX)*10.**IP+0.5
            IP=IP+60K
            NDPPP(2)=IP
            NDPPP(5)=MOD(IWORKD,10)+60K
            IWORKD=IWORKD/10
            NDPPP(4)=MOD(IWORKD,10)+60K
            NDPPP(3)=IWORKD/10+60K
            GOTO 15
      10016 NDPPP(5)=' /'
            NDPPP(4)=' /'
            NDPPP(3)=' /'
            NDPPP(2)=' /'
      15    CONTINUE
            DO 200 I=1,5
            WORD=WORD+1
      200   OUT(WORD)=HHZ11(I)
            DO 210 I=1,5
```

```
      WORD=WORD+1
  210 OUT(WORD)=DIFF(1)
      DO 220 I=1,5
      WORD=WORD+1
  220 OUT(WORD)=NOFFF(I)
  16  CONTINUE
      IBOT=1
      ITOP=2
      IF(.NOT.FINIS)GOTO 26
   17 DECODE(ROCKTIME,1)NT
    1 FORMAT(I4)
      NT=NT/10
      KK=1
      IF(STANUM.EQ.1)KK=2
      IF(STANUM.EQ.9)KK=3
      IF(STANUM.EQ.12)KK=4
      NYY=IYR-1000
      CALL LEFTZERO(IDA,2,DD(1))
      CALL LEFTZERO(NT,3,DD(3))
      CALL LEFTZERO(IMON,2,DD(6))
C
      WRITE(IOU3,20004)
20004 FORMAT("1")
      WRITE(IOU3,20002)(DD(I),I=1,7),NYY,(INTIND(I,KK),I=1,3)
      WRITE(IOU4,20002)(DD(I),I=1,7),NYY,(INTIND(I,KK),I=1,3)
20002 FORMAT(4X,"RKXX "5I1,1X,2I1,I3,3R2," 91011 63111")
C
      IBEG=1
      IEND=50
300   WRITE(IOU3,20001)(OUT(I),I=IBEG,IEND)
      WRITE(IOU4,20001)(OUT(I),I=IBEG,IEND)
      IBEG=IBEG+50
      IEND=IEND+50
      IF(IEND.GT.WORD)IEND=WORD
      IF(IBEG.LT.WORD)GOTO 300
20001 FORMAT(4X,5R1,1X,5R1,1X,5R1,1X,5R1,1X,5R1,1X,5R1,1X,5R1,
     *  1X,5R1,1X,5R1,1X,5R1,1X,5R1)
      CLOSE IOU1
C
      CALL MANOL
C
      WRITE(IOU3,20003)
20003 FORMAT(4X,"JJJ")
      RETURN
      END
```

```
      SUBROUTINE MANDL
      INCLUDE 'DATA62'
      INTEGER OUT(400),SIG(6)
C
      DATA SIG/11,22,33,44,55,66/
C
      OPEN (1002,'TAPE2',LEN=36
C
      J=1
      A=1
C
      READ(1002)H1,X1,Y1,UX1,UY1,T1,UT1,P1,F1
  100 READ(1002,END=250)H2,X2,Y2,UX2,UY2,T2,UT2,P2,F2
      IF(P1.GE.998.)GOTO 104
      IF(P2.GE.998.)GOTO 100
  101 IF(PL(J).LE.P1)GOTO 103
      J=J+1
      GOTO 101
  103 IF(PL(J).GT.P2)GOTO 105
  104 H1=H2
      X1=X2
      Y1=Y2
      T1=T2
      P1=P2
      GOTO 100
  105 RAT=(PL(J)-P2)/(P1-P2)
      H=VALUE(RAT,H1,H2)
      X=VALUE(RAT,X1,X2)
      Y=VALUE(RAT,Y1,Y2)
      T=VALUE(RAT,T1,T2)
      DIR=WDIR(X,Y)
      SPD=WSPD(X,Y)
      IF(X.LT.998.)GOTO 202
      DIR=9999.
      SPD=9999.
      GOTO 206
  202 X=-X
      Y=-Y
  206 IF(T.GE.999.)T=9999.
      T=T-273.15
      JS=6
      IF(J.LT.31)JS=5
      IF(J.LT.26)JS=4
      IF(J.LT.21)JS=3
      IF(J.LT.16)JS=2
      IF(J.LT.10)JS=1
      IF(T.GT.9000.)GOTO 218
      IT=0.5-T
      IF(IT.LE.99)GOTO 217
      KA=6
      IT=IT-100
      GOTO 218
  217 IF(IT.LE.0)GOTO 219
      KA=5
      GOTO 218
  219 KA=0
```

```
      IT=-IT
C
C     SIGNIFICANT INDICATOR, TEMPERATURE INDICATOR, AND TEMPERATURE
C
  218 CALL LEFTZERO(SIG(JS),2,OUT(M))
      DO 300 I=1,2
      OUT(M)=OUT(M)+60K
  300 M=M+1
      IF(T.GT.9000.)GOTO 221
      OUT(M)=KA+30K
      M=M+1
      CALL LEFTZERO(IT,2,OUT(M))
      DO 310 I=1,2
      OUT(M)=OUT(M)+60K
  310 M=M+1
      GOTO 220
  221 DO 320 I=1,3
      OUT(M)=' Z'
  320 M=M+1
  220 CONTINUE
      F1=.5
      IF(PL(J).LT. 0.)F1=.05
      IF(PL(J).LT.-1.)F1=.005
      IF(PL(J).LT.-2.)F1=.0005
      IF(PL(J).LT.-3.)F1=.00005
      IF(PL(J).LT.-4.)F1=.000005
      IPS=(10.**PL(J)+F1)*(10.**JS/10.)
      IH=((GRAT*(RE*H)/(RE+H))+5.)/100.
      IF(JS.EQ.6)IH=IH/10
C
C     PRESSURE AND HEIGHT
C
      CALL LEFTZERO(IPS,2,OUT(M))
      DO 330 I=1,2
      OUT(M)=OUT(M)+60K
  330 M=M+1
      CALL LEFTZERO(IH,3,OUT(M))
      DO 340 I=1,3
      OUT(M)=OUT(M)+60K
  340 M=M+1
      IDD=(DIR+5.)/10.
      ISS=SPD+.5
      IF(IDD.GT.998.OR.ISS.GT.998)GOTO 233
      IF(IDD.EQ.0)IDD=36
C
C     WIND DIRECTION AND SPEED
C
      CALL LEFTZERO(IDD,2,OUT(M))
      DO 350 I=1,2
      OUT(M)=OUT(M)+60K
  350 M=M+1
      CALL LEFTZERO(ISS,2,OUT(M))
      DO 360 I=1,3
      OUT(M)=OUT(M)+60K
  360 M=M+1
      GOTO 243
```

```
      243     DO 370 I=1,5
              OUT(M)=' '
      370     M=M+1
      244     CONTINUE
              GOTO 104
      C
      250     IF(M.EQ.1)GOTO 290
              M=M-1
              WRITE(1003,17)(OUT(I),I=1,M)
              WRITE(1004,17)(OUT(I),I=1,M)
      17      FORMAT(4X,5R1,1X,5R1,1X,5R1,1X,5R1,1X,5R1,1X,5R1,1X,
             *5R1,1X,5R1,1X,5R1,1X,5R1)
      290     CLOSE 1002
              RETURN
              END
```

```
C       ROUTINE TO PAD NUMBERS WITH LEADING ZEROS
C
        SUBROUTINE LEFTZERO(NUMBER,DIGITS,OUTPUT)
C
        INTEGER OUTPUT(5),DIVISOR,HOLD,DIGITS
C
C       GENERATES AN ARRAY OF SINGLE DIGITS FROM SUCCESSIVE DIVISIONS.
C       VALID FOR INTEGERS IN THE RANGE ZERO TO 2**(WORDSIZE).
C
        DIVISOR=10**(DIGITS-1)
        HOLD=NUMBER
        DO 100 INDEX=1,DIGITS
        OUTPUT(INDEX)=HOLD/DIVISOR
        HOLD=MOD(HOLD,DIVISOR)
        DIVISOR=DIVISOR/10
100     CONTINUE
        RETURN
        END
```

```
      SUBROUTINE ISIGN(I,K)
C
C     CONVERTS DECIMAL INTEGER TO POSITIVE OR NEGATIVE CHARACTER
C
      INTEGER CODE(0:9),NCODE(0:9)
      DATA CODE/' I',' J',' K',' L',' M',' N',' O',' P',' Q',' R'/
      DATA NCODE/' 0',' 1',' 2',' 3',' 4',' 5',' 6',' 7',' 8',' 9'/
C
      IF(I.LT.990)GOTO 50
      I=99
      K=IR9
      RETURN
   50 II=I/10
      KK=I-II*10
      IF(I.GE.0)GOTO 200
      II=IABS(II)
      KK=IABS(KK)
      DO 100 J=0,9
      IF(J.NE.KK)GOTO 100
      K=CODE(J)
      I=II
      RETURN
  100 CONTINUE
C
  200 DO 210 J=0,9
      IF(J.NE.KK)GOTO 210
      K=NCODE(J)
      I=II
      RETURN
  210 CONTINUE
      END
```

```
      FUNCTION VALUE(R,A,B)
      VALUE=R*(A-B)+B
      IF(A.EQ.999.9.OR.B.EQ.999.9)VALUE=999.9
      IF(A.EQ.-999.9.OR.B.EQ.-999.9)VALUE=-999.9
      RETURN
      END
```

```
      FUNCTION WDIR(XX,YY)
      IF(XX.NE.0.0)GOTO 100
      IF(YY.GE.0.0)WDIR=360.0
      IF(YY.LT.0.0)WDIR=180.0
      RETURN
  100 D=ATAN(YY/XX)*57.29578
      WDIR=270.0-D
      IF(XX.GT.0.0)WDIR=90.0-D
      IF(WDIR.LT.0.5)WDIR=360.0
      RETURN
      END
```

```
      FUNCTION WSPD(X,Y)
      WSPD=(X*X+Y*Y)**0.5
      IF(X.EQ.999.9.OR.Y.EQ.999.9)WSPD=999.
      RETURN
      END
```

END

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