

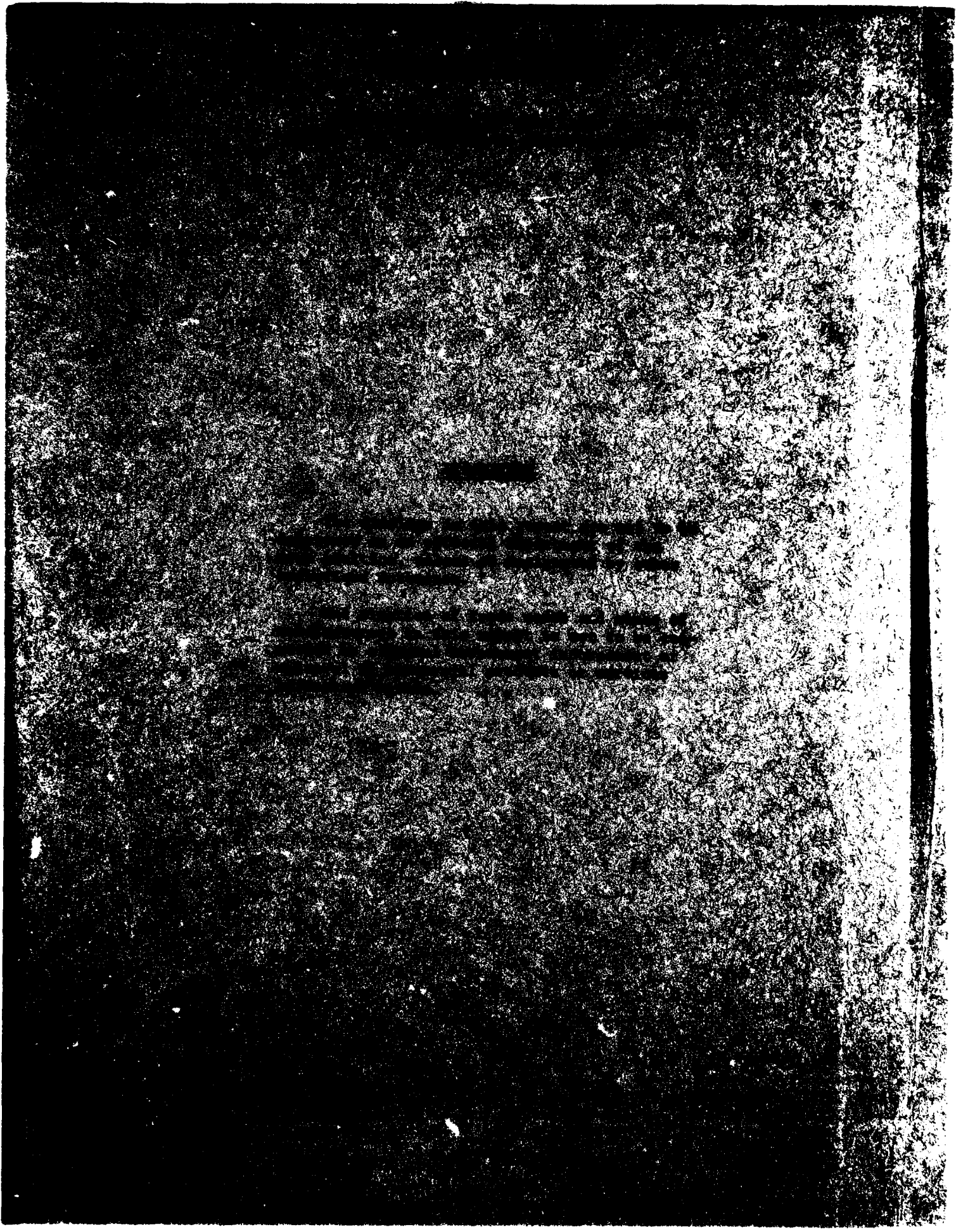
AD-A102 289 ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/G 4/2  
203018 ASSAULT BREAKER. MISSILE NUMBER FTV-2; ROUND NUMBER V2A1--ETC(U)  
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| REPORT DOCUMENTATION PAGE                                                                                                                                                                                                                |                                     | READ INSTRUCTIONS<br>BEFORE COMPLETING FORM                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|------------------------------------------------------------------------|
| 1. REPORT NUMBER<br>DR 1189                                                                                                                                                                                                              | 2. GOVT ACCESSION NO.<br>AD-A102289 | 3. RECIPIENT'S CATALOG NUMBER                                          |
| 4. TITLE (and Subtitle)<br>20301B Assault Breaker.<br>Missile Number FTV-2.<br>Round Number V2A1. 24 1181                                                                                                                                |                                     | 5. TYPE OF REPORT & PERIOD COVERED                                     |
| 7. AUTHOR(s)<br>White Sands Meteorological Team                                                                                                                                                                                          |                                     | 6. PERFORMING ORG. REPORT NUMBER                                       |
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|                                                                                                                                                                                                                                          |                                     | 13. NUMBER OF PAGES<br>40                                              |
|                                                                                                                                                                                                                                          |                                     | 15. SECURITY CLASS. (of this report)<br>UNCLASSIFIED                   |
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| 16. DISTRIBUTION STATEMENT (of this Report)<br>9 meteorological data rept.                                                                                                                                                               |                                     |                                                                        |
| 17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)<br>Approved for public release; distribution unlimited.                                                                                       |                                     |                                                                        |
| 18. SUPPLEMENTARY NOTES                                                                                                                                                                                                                  |                                     |                                                                        |
| 19. KEY WORDS (Continue on reverse side if necessary and identify by block number)                                                                                                                                                       |                                     |                                                                        |
| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number)<br>Meteorological data gathered for the launching of the 20301B Assault Breaker,<br>Missile Number FTV-2, Round Number V2A1 presented in tabular form. |                                     |                                                                        |

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## INTRODUCTION

20301B Assault Breaker, Missile Number FTV-2, Round Number V2A1, was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 0919 MDT, 24 June 1981. The scheduled launch time was 0900 MDT.

## DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

### 1. Observations

#### a. Surface

(1) Standard surface observations to include pressure, temperature ( $^{\circ}\text{C}$ ), relative humidity, dew point ( $^{\circ}\text{C}$ ), density ( $\text{gm}/\text{m}^3$ ), wind direction and speed, and cloud cover were made at the LC-33 and Jallen Met Site.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

#### b. Upper Air

(1) Low level wind data were obtained from PAPTS T-9 pilot observation at:

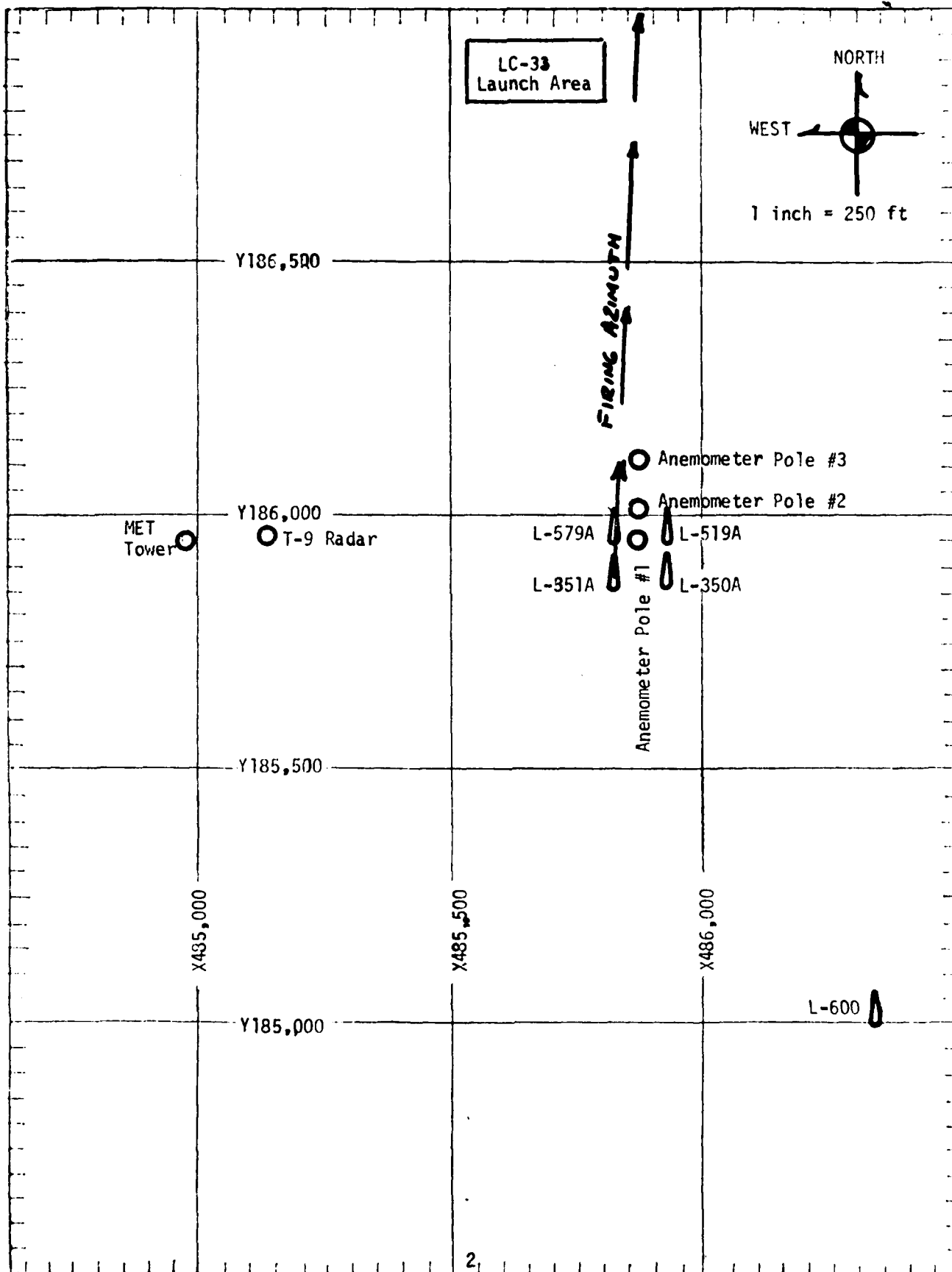
### SITE AND ALTITUDE

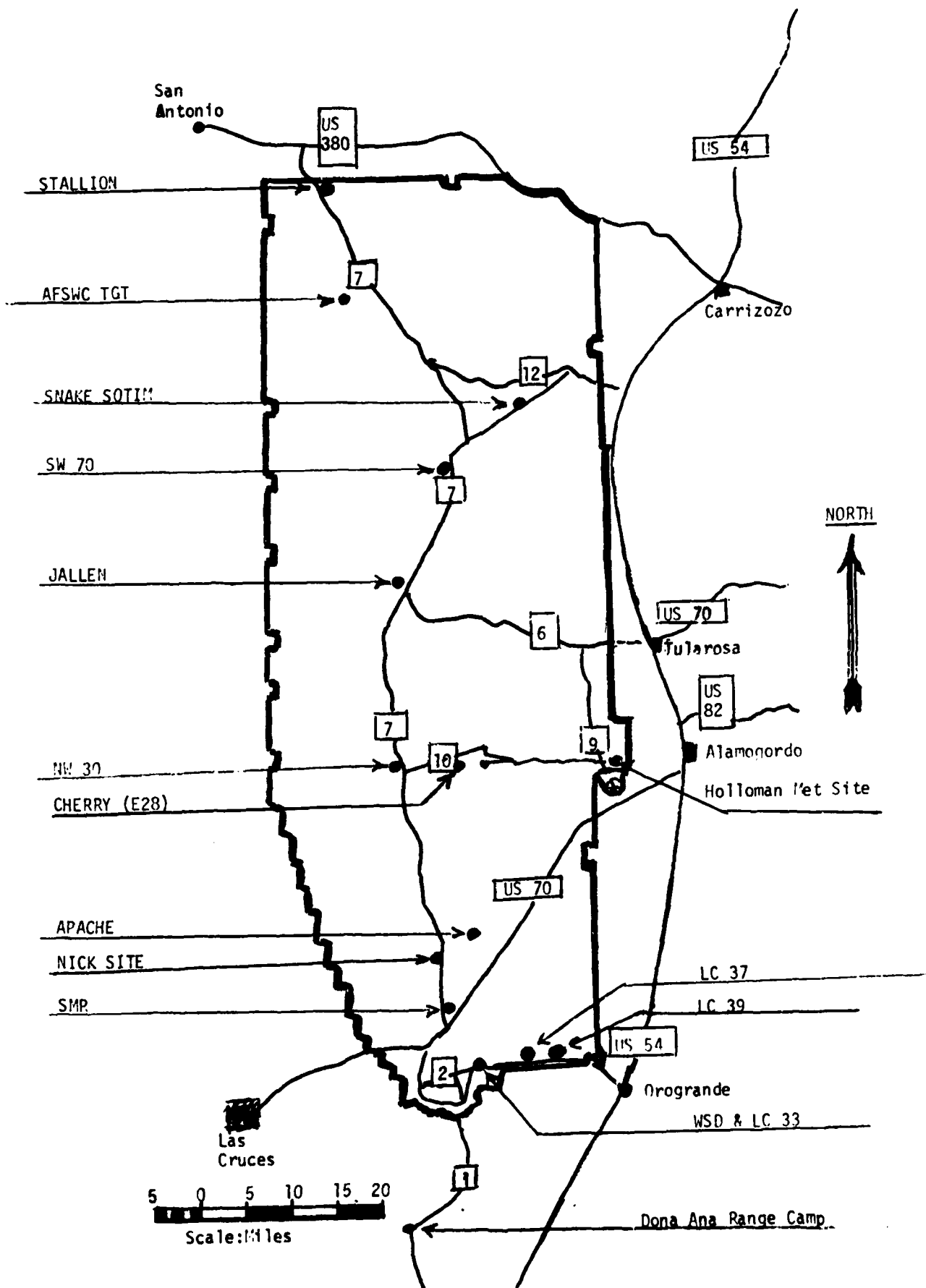
|       |             |
|-------|-------------|
| LC-33 | 2730 Meters |
|-------|-------------|

(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to high as possible in 500-foot increments.

### SITE AND TIME

|      |          |
|------|----------|
| NW30 | 0630 MDT |
| JAL  | 0745 MDT |
| WSD  | 0915 MDT |
| JAL  | 0915 MDT |





|                |     |                            |      |  |
|----------------|-----|----------------------------|------|--|
| TABLE          | 1   |                            |      |  |
| DATE           | 24  | 6                          | 81   |  |
|                | DAY | MONTH                      | YEAR |  |
| STATION        |     | LC-33                      |      |  |
| X = 484,982.64 |     | Y = 185,957.73 H = 3983.00 |      |  |

[illegible][illegible]

|                 |      |  |
|-----------------|------|--|
| TIME:           | 0919 |  |
| DRY BULB TEMP.  | 28.1 |  |
| WET BULB TEMP.  | 18.1 |  |
| WET BULB DEPR.  | 10.0 |  |
| DEW POINT       | 13.1 |  |
| RELATIVE HUMID. | 40   |  |

TABLE 2 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

| POLE #1<br>X485,874.29<br>Y185,958.90<br>H4018.74<br>38.7 ft. AGL |            |              | POLE #2<br>X485,874.93<br>Y186,012.00<br>H4033.57<br>53.0 ft. AGL |            |              | POLE #3<br>X485,877.21<br>Y186,116.06<br>H4063.92<br>83.6 ft. AGL |            |              |
|-------------------------------------------------------------------|------------|--------------|-------------------------------------------------------------------|------------|--------------|-------------------------------------------------------------------|------------|--------------|
| T-TIME<br>SEC                                                     | DIR<br>DEG | SPEED<br>KTS | T-TIME<br>SEC                                                     | DIR<br>DEG | SPEED<br>KTS | T-TIME<br>SEC                                                     | DIR<br>DEG | SPEED<br>KTS |
| -30                                                               | 121        | 05           | -30                                                               | 138        | MISG         | -30                                                               | 162        | 06           |
| -20                                                               | 121        | 06           | -20                                                               | 142        | MISG         | -20                                                               | 153        | 07           |
| -10                                                               | 121        | 06           | -10                                                               | 135        | MISG         | -10                                                               | 154        | 07           |
| 0.0                                                               | 121        | 06           | 0.0                                                               | 149        | MISG         | 0.0                                                               | 151        | 07           |
| +10                                                               | 123        | 06           | +10                                                               | 147        | MISG         | +10                                                               | 152        | 08           |

TABLE 3 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

| LEVEL #1, 12 FEET<br>X484,982.64, Y185,057.73, H3983.00 (base) |         |           | LEVEL #2, 62 FEET<br>X484,982.64, Y185,057.73, H3983.00 (base) |         |           |
|----------------------------------------------------------------|---------|-----------|----------------------------------------------------------------|---------|-----------|
| T-TIME SEC                                                     | DIR DEG | SPEED KTS | T-TIME SEC                                                     | DIR DEG | SPEED KTS |
| -30                                                            | 132     | 06        | -30                                                            | 126     | 06        |
| -20                                                            | 121     | 06        | -20                                                            | 147     | 06        |
| -10                                                            | 121     | 06        | -10                                                            | 136     | 05        |
| 0.0                                                            | 138     | 05        | 0.0                                                            | 153     | 05        |
| +10                                                            | 143     | 08        | +10                                                            | 154     | 05        |

| LEVEL #3, 102 FEET<br>X484,982.64, Y185,057.73, H3983.00 (base) |         |           | LEVEL #4, 202 FEET<br>X484,982, Y185,057.73, H3983.00 (base) |         |           |
|-----------------------------------------------------------------|---------|-----------|--------------------------------------------------------------|---------|-----------|
| T-TIME SEC                                                      | DIR DEG | SPEED KTS | T-TIME SEC                                                   | DIR DEG | SPEED KTS |
| -30                                                             | 150     | 07        | -30                                                          | 133     | 07        |
| -20                                                             | 153     | 06        | -20                                                          | 132     | 07        |
| -10                                                             | 127     | 06        | -10                                                          | 133     | 06        |
| 0.0                                                             | 142     | 06        | 0.0                                                          | 126     | 06        |
| +10                                                             | 142     | 05        | +10                                                          | 123     | 06        |

## PILOT BALLOON MEASURED WIND DATA

TABLE 4

RELEASED FROM LC-33 E & A DATE 24 Jun 81 TIME 0919 MDT

COORDINATES (WSTM)    X= 485,135.76                    Y= 185,919.24                    U= 3988.57

NOTE: WIND DIRECTIONS ARE REFERENCED TO \_\_\_\_\_.

HEIGHTS ARE METERS AGL XX OR FEET AGL

| HEIGHT<br>AGL | DIRECTION<br>DEGREES | SPEED<br>KNOTS |
|---------------|----------------------|----------------|
| sfc           | 130                  | 05             |
| 30            | 125                  | 06             |
| 90            | 115                  | 05             |
| 150           | 137                  | 05             |
| 210           | 140                  | 05             |
| 270           | 156                  | 04             |
| 330           | 114                  | 04             |
| 390           | 108                  | 03             |
| 450           | 090                  | 01             |
| 510           | 172                  | 02             |
| 570           | 326                  | 02             |
| 630           | 338                  | 02             |
| 690           | 280                  | 04             |
| 750           | 282                  | 07             |
| 810           | 288                  | 06             |
| 870           | 303                  | 07             |
| 930           | 293                  | 10             |
| 990           | 300                  | 12             |
| 1050          | 297                  | 12             |
| 1110          | 286                  | 10             |
| 1170          | 290                  | 11             |
| 1230          | 295                  | 17             |
| 1290          | 301                  | 20             |
| 1350          | 295                  | 18             |
| 1410          | 306                  | 14             |
| 1470          | 319                  | 13             |
| 1530          | 336                  | 13             |
| 1590          | 322                  | 12             |
| 1650          | 325                  | 08             |
| 1710          | 329                  | 09             |
| 1770          | 341                  | 13             |

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# PROJECT SURFACE OBSERVATION

| TABLE 5       |                 |                      |                    |                           |                              |                   |                      |                  |                 |
|---------------|-----------------|----------------------|--------------------|---------------------------|------------------------------|-------------------|----------------------|------------------|-----------------|
| STATION JAL-R |                 |                      |                    |                           |                              |                   |                      |                  |                 |
| DATE 24       |                 | Jun                  | 81                 |                           |                              |                   |                      |                  |                 |
| DAY           | MONTH           | YEAR                 |                    | X= 450.362.08             | Y= 464.129.26                | H= 4053.51        |                      |                  |                 |
| TIME<br>M --  | PRESSURE<br>mbs | TEMPERATURE<br>OF °C | DEW POINT<br>OF °C | RELATIVE<br>HUMIDITY<br>% | DENSITY<br>gm/m <sup>3</sup> | DIRECTION<br>degs | WIND<br>SPEED<br>kts | CHARACTER<br>kts | VISIBIL-<br>ITY |
| 0845          | 877.3           | 26.4                 | 11.5               | 40                        | 1012                         |                   | CALM                 |                  | 50              |
| 0915          | 877.3           | 27.9                 | 121                | 3.8                       | 1007                         |                   | CALM                 |                  | 50              |
| 0945          | 877.2           | 28.2                 | 13.6               | 41                        | 1005                         | 170               | 02                   |                  | 50              |

| OBSTRUCTIONS<br>TO VISIBILITY | CLOUDS    |      |       |           |      |           |     | REMARKS |      |
|-------------------------------|-----------|------|-------|-----------|------|-----------|-----|---------|------|
|                               | 1st LAYER |      |       | 2nd LAYER |      | 3rd LAYER |     |         |      |
|                               | AMT       | TYPE | HGT   | AMT       | TYPE | HGT       | AMT |         | TYPE |
| None                          | 4         | AS   | 12000 | 6         | CI   | 20000     |     |         |      |
| None                          | 3         | AS   | 12000 | 7         | CI   | 20000     |     |         |      |
| None                          | 8         | CI   | 20000 |           |      |           |     |         |      |

## PSYCHROMETRIC COMPUTATION

|                 |      |      |      |
|-----------------|------|------|------|
| TIME:           | 0845 | 0915 | 0945 |
| DRY BULB TEMP.  | 26.4 | 27.9 | 28.2 |
| WET BULB TEMP.  | 16.7 | 17.5 | 18.4 |
| WET BULB DEPR.  | 9.7  | 10.4 | 9.8  |
| DEW POINT       | 11.5 | 21.1 | 13.6 |
| RELATIVE HUMID. | 40   | 38   | 41   |

STATION ALTITUDE 4010.40 FEET MSL  
24 JUNE 81  
ASCENSION NO. 59

SIGNIFICANT LEVEL DATA  
1750220059  
NW 30

GEODETIC COORDINATES  
32.88497 LAT DEG  
106.49714 LON DEG

TABLE 6

| PRESSURE<br>MILLIBARS | GEOMETRIC<br>ALTITUDE<br>MSL FEET | TEMPERATURE    |                        | REL. HUM.<br>PERCENT |
|-----------------------|-----------------------------------|----------------|------------------------|----------------------|
|                       |                                   | AIR<br>DEGREES | DEWPOINT<br>CENTIGRADE |                      |
| 879.5                 | 4010.4                            | 22.6           | 13.4                   | 56.0                 |
| 865.0                 | 4487.9                            | 24.6           | 12.2                   | 46.0                 |
| 850.0                 | 4992.1                            | 24.6           | 12.2                   | 46.0                 |
| 760.4                 | 8163.6                            | 17.7           | 6.6                    | 48.0                 |
| 741.0                 | 8860.9                            | 18.4           | 5.9                    | 44.0                 |
| 700.0                 | 10483.8                           | 14.3           | 2.9                    | 46.0                 |
| 652.0                 | 12441.5                           | 9.9            | -0                     | 50.0                 |
| 616.0                 | 13982.9                           | 5.7            | -1.9                   | 58.0                 |
| 591.0                 | 15093.3                           | 3.0            | -3.3                   | 63.0                 |
| 549.2                 | 17031.3                           | -2.2           | -4.5                   | 84.0                 |
| 525.0                 | 18203.7                           | -5.3           | -7.9                   | 82.0                 |
| 500.0                 | 19461.6                           | -6.8           | -11.3                  | 70.0                 |
| 490.0                 | 19979.5                           | -8.3           | -12.1                  | 74.0                 |
| 482.9                 | 20352.4                           | -8.5           | -14.1                  | 64.0                 |
| 469.8                 | 21053.3                           | -9.5           | -15.8                  | 60.0                 |
| 444.2                 | 22467.8                           | -13.5          | -16.8                  | 76.0                 |
| 432.2                 | 23151.8                           | -15.0          | -18.9                  | 72.0                 |
| 416.2                 | 24088.3                           | -16.6          | -21.3                  | 67.0                 |
| 409.0                 | 24520.1                           | -16.6          | -23.7                  | 54.0                 |
| 400.0                 | 25070.5                           | -16.8          | -26.4                  | 43.0                 |
| 353.6                 | 28082.3                           | -22.9          | -34.4                  | 34.0                 |
| 327.6                 | 29907.9                           | -27.7          | -36.6                  | 42.0                 |
| 300.0                 | 31967.7                           | -33.3          | -40.9                  | 46.0                 |
| 290.2                 | 32733.9                           | -34.7          | -41.2                  | 51.0                 |
| 266.8                 | 34648.3                           | -39.5          | -48.3                  | 38.0                 |
| 255.6                 | 35609.8                           | -42.0          | -50.2                  | 40.0                 |
| 250.0                 | 36102.5                           | -43.3          |                        |                      |
| 233.8                 | 37577.5                           | -46.6          |                        |                      |
| 203.2                 | 40597.7                           | -53.5          |                        |                      |
| 200.0                 | 40933.8                           | -54.0          |                        |                      |
| 171.0                 | 44191.2                           | -61.5          |                        |                      |
| 158.2                 | 45774.5                           | -63.3          |                        |                      |
| 150.0                 | 46849.5                           | -64.7          |                        |                      |
| 138.4                 | 48466.1                           | -65.7          |                        |                      |
| 131.0                 | 49560.9                           | -68.1          |                        |                      |
| 109.8                 | 53042.9                           | -69.9          |                        |                      |
| 100.0                 | 54882.5                           | -69.2          |                        |                      |
| 94.4                  | 56012.4                           | -71.4          |                        |                      |
| 80.0                  | 59263.0                           | -68.6          |                        |                      |
| 77.4                  | 59925.0                           | -63.3          |                        |                      |

STATION ALTITUDE 4610.40 FEET MSL  
24 JUNE 81 0630 HRS MDI  
ASCENSION NO. 59

SIGNIFICANT LEVEL DATA  
1750220059  
NW 30

GEODETIC COORDINATES  
32.88497 LAT DEG  
106.49714 LON DEG

TABLE 6 (Con't)

| PRESSURE<br>MILLIBARS | GEOMETRIC<br>ALTITUDE<br>MSL FEET | TEMPERATURE    |                        | REL. HUM.<br>PERCENT |
|-----------------------|-----------------------------------|----------------|------------------------|----------------------|
|                       |                                   | AIR<br>DEGREES | DEWPOINT<br>CENTIGRADE |                      |
| 70.0                  | 61982.3                           | -59.6          |                        |                      |
| 57.4                  | 66081.9                           | -59.6          |                        |                      |
| 50.0                  | 68954.7                           | -56.5          |                        |                      |
| 45.4                  | 70979.5                           | -56.3          |                        |                      |
| 34.2                  | 76959.1                           | -54.0          |                        |                      |
| 30.0                  | 79755.9                           | -51.6          |                        |                      |
| 23.0                  | 85554.5                           | -44.3          |                        |                      |
| 20.6                  | 88004.8                           | -43.3          |                        |                      |
| 20.0                  | 88665.2                           | -42.1          |                        |                      |
| 15.8                  | 93969.2                           | -40.2          |                        |                      |
| 13.4                  | 97695.6                           | -39.9          |                        |                      |
| 10.0                  | 104429.2                          | -32.4          |                        |                      |
| 9.6                   | 105384.6                          | -31.9          |                        |                      |

STATION ALTITUDE 4010.40 FEET MSL  
24 JUNE 61  
ASCENSION NO. 59

0630 HRS MDT

UPPER AIR DATA

1750220059

NW 30

GEODETIC COORDINATES  
32.88497 LAT DEG  
106.49714 LON DEG

TABLE 7

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | AIR TEMPERATURE<br>DEGREES | TEMPERATURE<br>DEWPOINT<br>CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CM <sup>3</sup> | SPEED OF<br>SOUND<br>KNOTS | WIND DATA<br>DIRECTION (TN)<br>SPEED<br>KNOTS | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|----------------------------|---------------------------------------|----------------------|-------------------------------|----------------------------|-----------------------------------------------|---------------------------|
| 4010.4                         | 879.5                 | 22.6                       | 13.4                                  | 56.0                 | 1029.1                        | 672.2                      | 350.0                                         | 1.000296                  |
| 4500.0                         | 864.6                 | 24.6                       | 12.2                                  | 46.0                 | 1005.3                        | 674.3                      | 327.8                                         | 1.000285                  |
| 5000.0                         | 849.8                 | 24.6                       | 12.2                                  | 46.0                 | 988.0                         | 674.4                      | 292.7                                         | 1.000281                  |
| 5500.0                         | 835.0                 | 23.5                       | 11.3                                  | 46.3                 | 974.6                         | 673.0                      | 262.7                                         | 1.000275                  |
| 6000.0                         | 820.4                 | 22.4                       | 10.4                                  | 46.6                 | 961.4                         | 671.7                      | 243.2                                         | 1.000269                  |
| 6500.0                         | 806.2                 | 21.3                       | 9.5                                   | 47.0                 | 948.4                         | 670.4                      | 228.8                                         | 1.000263                  |
| 7000.0                         | 792.1                 | 20.2                       | 8.6                                   | 47.3                 | 935.5                         | 669.1                      | 223.0                                         | 1.000258                  |
| 7500.0                         | 778.3                 | 19.1                       | 7.8                                   | 47.6                 | 922.9                         | 667.8                      | 228.1                                         | 1.000253                  |
| 8000.0                         | 764.8                 | 18.1                       | 6.9                                   | 47.9                 | 910.4                         | 666.4                      | 244.4                                         | 1.000247                  |
| 8500.0                         | 751.4                 | 18.0                       | 6.3                                   | 46.1                 | 894.6                         | 666.4                      | 260.1                                         | 1.000242                  |
| 9000.0                         | 738.1                 | 18.0                       | 5.7                                   | 44.2                 | 878.9                         | 666.4                      | 254.8                                         | 1.000237                  |
| 9500.0                         | 725.0                 | 16.8                       | 4.7                                   | 44.8                 | 867.3                         | 664.8                      | 248.2                                         | 1.000232                  |
| 10000.0                        | 712.2                 | 15.5                       | 3.8                                   | 45.4                 | 855.8                         | 663.3                      | 239.6                                         | 1.000227                  |
| 10500.0                        | 699.6                 | 14.3                       | 2.8                                   | 46.0                 | 844.5                         | 661.8                      | 256.1                                         | 1.000223                  |
| 11000.0                        | 687.0                 | 13.1                       | 2.1                                   | 47.1                 | 832.7                         | 660.5                      | 279.3                                         | 1.000218                  |
| 11500.0                        | 674.7                 | 12.0                       | 1.4                                   | 48.1                 | 821.1                         | 659.1                      | 306.4                                         | 1.000214                  |
| 12000.0                        | 662.5                 | 10.9                       | .6                                    | 49.1                 | 809.6                         | 657.8                      | 323.5                                         | 1.000210                  |
| 12500.0                        | 650.6                 | 9.7                        | -.1                                   | 50.3                 | 798.3                         | 656.4                      | 333.3                                         | 1.000207                  |
| 13000.0                        | 638.7                 | 8.4                        | -.7                                   | 52.9                 | 787.6                         | 654.8                      | 335.9                                         | 1.000203                  |
| 13500.0                        | 627.1                 | 7.0                        | -1.3                                  | 55.5                 | 777.1                         | 653.2                      | 340.5                                         | 1.000200                  |
| 14000.0                        | 615.6                 | 5.7                        | -1.9                                  | 58.1                 | 766.7                         | 651.6                      | 349.0                                         | 1.000197                  |
| 14500.0                        | 604.2                 | 4.4                        | -2.6                                  | 60.3                 | 755.9                         | 650.1                      | 357.8                                         | 1.000193                  |
| 15000.0                        | 593.1                 | 3.2                        | -3.2                                  | 62.6                 | 745.2                         | 648.7                      | 6.5                                           | 1.000190                  |
| 15500.0                        | 582.0                 | 1.9                        | -3.5                                  | 67.4                 | 734.8                         | 647.1                      | 16.2                                          | 1.000187                  |
| 16000.0                        | 571.1                 | .6                         | -3.7                                  | 72.8                 | 724.6                         | 645.5                      | 25.7                                          | 1.000185                  |
| 16500.0                        | 560.4                 | -.8                        | -4.1                                  | 78.2                 | 714.5                         | 643.9                      | 34.7                                          | 1.000182                  |
| 17000.0                        | 549.9                 | -2.1                       | -4.5                                  | 83.7                 | 704.6                         | 642.3                      | 41.7                                          | 1.000180                  |
| 17500.0                        | 539.4                 | -3.4                       | -5.9                                  | 83.2                 | 694.8                         | 640.7                      | 48.4                                          | 1.000175                  |
| 18000.0                        | 529.1                 | -4.8                       | -7.3                                  | 82.3                 | 685.1                         | 639.0                      | 53.3                                          | 1.000171                  |
| 18500.0                        | 519.0                 | -5.7                       | -8.7                                  | 79.2                 | 674.3                         | 637.9                      | 57.7                                          | 1.000167                  |
| 19000.0                        | 509.0                 | -6.2                       | -10.0                                 | 74.4                 | 663.0                         | 637.1                      | 60.5                                          | 1.000163                  |
| 19500.0                        | 499.3                 | -6.9                       | -11.4                                 | 70.3                 | 652.0                         | 636.3                      | 62.2                                          | 1.000159                  |
| 20000.0                        | 489.6                 | -8.3                       | -12.2                                 | 73.5                 | 642.8                         | 634.6                      | 59.5                                          | 1.000156                  |
| 20500.0                        | 480.1                 | -8.7                       | -14.4                                 | 63.2                 | 631.5                         | 634.0                      | 58.1                                          | 1.000152                  |
| 21000.0                        | 470.8                 | -9.4                       | -15.7                                 | 60.3                 | 621.0                         | 633.1                      | 52.5                                          | 1.000148                  |
| 21500.0                        | 461.6                 | -10.8                      | -16.4                                 | 65.1                 | 611.9                         | 631.5                      | 50.3                                          | 1.000146                  |
| 22000.0                        | 452.5                 | -12.2                      | -16.4                                 | 70.7                 | 603.2                         | 629.8                      | 49.1                                          | 1.000144                  |
| 22500.0                        | 443.6                 | -13.6                      | -16.9                                 | 75.8                 | 594.5                         | 628.1                      | 49.1                                          | 1.000142                  |
| 23000.0                        | 434.8                 | -14.7                      | -19.4                                 | 72.9                 | 585.3                         | 626.7                      | 49.8                                          | 1.000138                  |
| 23500.0                        | 426.2                 | -15.6                      | -19.8                                 | 70.1                 | 575.6                         | 625.6                      | 49.0                                          | 1.000136                  |

STATION ALTITUDE 4010.40 FEET MSL  
 24 JUNE 61  
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UPPER AIR DATA  
 1750220059  
 NW 30

GEODETTIC COORDINATES  
 32.88497 LAT DEG  
 106.49714 LONG DEG

TABLE 7 (Con't)

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREES<br>CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA<br>DIRECTION<br>DEGREES (TN) | SPEED<br>KNOTS | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|------------------------------------------|----------------------|------------------------------|----------------------------|----------------------------------------|----------------|---------------------------|
| 24000.0                        | 417.7                 | -16.4                                    | 67.5                 | 566.2                        | 624.5                      | 47.4                                   | 11.4           | 1.000133                  |
| 24500.0                        | 409.3                 | -16.6                                    | 54.6                 | 555.4                        | 624.3                      | 46.8                                   | 11.2           | 1.000129                  |
| 25000.0                        | 401.1                 | -16.8                                    | 44.4                 | 544.7                        | 624.0                      | 47.2                                   | 11.0           | 1.000126                  |
| 25500.0                        | 393.0                 | -17.7                                    | 41.7                 | 535.6                        | 622.9                      | 55.6                                   | 10.8           | 1.000123                  |
| 26000.0                        | 385.1                 | -18.7                                    | 40.2                 | 526.9                        | 621.6                      | 65.8                                   | 10.4           | 1.000121                  |
| 26500.0                        | 377.3                 | -19.7                                    | 38.7                 | 518.3                        | 620.4                      | 82.4                                   | 9.6            | 1.000118                  |
| 27000.0                        | 369.6                 | -20.7                                    | 37.2                 | 509.8                        | 619.1                      | 93.0                                   | 9.3            | 1.000116                  |
| 27500.0                        | 362.1                 | -21.7                                    | 35.7                 | 501.5                        | 617.9                      | 93.3                                   | 8.9            | 1.000114                  |
| 28000.0                        | 354.8                 | -22.7                                    | 34.2                 | 493.4                        | 616.6                      | 85.6                                   | 8.5            | 1.000112                  |
| 28500.0                        | 347.5                 | -24.0                                    | 35.8                 | 485.7                        | 615.0                      | 71.5                                   | 8.6            | 1.000110                  |
| 29000.0                        | 340.3                 | -25.3                                    | 38.0                 | 478.2                        | 613.4                      | 64.6                                   | 8.1            | 1.000108                  |
| 29500.0                        | 333.2                 | -26.6                                    | 40.2                 | 470.8                        | 611.8                      | 59.3                                   | 7.2            | 1.000107                  |
| 30000.0                        | 326.3                 | -28.0                                    | 42.2                 | 463.5                        | 610.1                      | 46.5                                   | 5.7            | 1.000105                  |
| 30500.0                        | 319.4                 | -29.3                                    | 43.1                 | 456.2                        | 608.4                      | 25.1                                   | 4.6            | 1.000103                  |
| 31000.0                        | 312.7                 | -30.7                                    | 44.1                 | 449.1                        | 606.7                      | 1.0                                    | 5.0            | 1.000101                  |
| 31500.0                        | 306.1                 | -32.0                                    | 45.1                 | 442.1                        | 605.0                      | 344.0                                  | 6.1            | 1.000100                  |
| 32000.0                        | 299.6                 | -33.4                                    | 46.2                 | 435.1                        | 603.3                      | 336.7                                  | 7.3            | 1.000098                  |
| 32500.0                        | 293.2                 | -34.3                                    | 49.5                 | 427.4                        | 602.2                      | 333.7                                  | 8.7            | 1.000096                  |
| 33000.0                        | 286.8                 | -35.4                                    | 49.2                 | 420.1                        | 600.8                      | 335.6                                  | 10.2           | 1.000095                  |
| 33500.0                        | 280.6                 | -36.6                                    | 45.8                 | 413.2                        | 599.2                      | 337.5                                  | 11.7           | 1.000093                  |
| 34000.0                        | 274.5                 | -37.9                                    | 42.4                 | 406.4                        | 597.6                      | 339.2                                  | 13.1           | 1.000091                  |
| 34500.0                        | 268.5                 | -39.1                                    | 39.0                 | 399.7                        | 596.0                      | 336.2                                  | 14.2           | 1.000090                  |
| 35000.0                        | 262.6                 | -40.4                                    | 38.7                 | 393.1                        | 594.4                      | 331.6                                  | 15.1           | 1.000088                  |
| 35500.0                        | 256.9                 | -41.7                                    | 39.8                 | 386.6                        | 592.7                      | 326.4                                  | 16.5           | 1.000087                  |
| 36000.0                        | 251.2                 | -43.0                                    | 8.3**                | 380.2                        | 591.0                      | 321.4                                  | 18.3           | 1.000085                  |
| 36500.0                        | 245.5                 | -44.2                                    |                      | 373.6                        | 589.5                      | 318.0                                  | 19.7           | 1.000083                  |
| 37000.0                        | 240.0                 | -45.3                                    |                      | 367.0                        | 588.0                      | 315.5                                  | 20.7           | 1.000082                  |
| 37500.0                        | 234.6                 | -46.4                                    |                      | 360.5                        | 586.6                      | 314.0                                  | 20.5           | 1.000080                  |
| 38000.0                        | 229.3                 | -47.6                                    |                      | 354.0                        | 585.1                      | 312.9                                  | 19.6           | 1.000079                  |
| 38500.0                        | 224.0                 | -48.7                                    |                      | 347.7                        | 583.6                      | 312.9                                  | 19.7           | 1.000077                  |
| 39000.0                        | 218.9                 | -49.8                                    |                      | 341.4                        | 582.2                      | 313.5                                  | 19.9           | 1.000076                  |
| 39500.0                        | 213.8                 | -51.0                                    |                      | 335.3                        | 580.7                      | 318.4                                  | 20.2           | 1.000075                  |
| 40000.0                        | 208.9                 | -52.1                                    |                      | 329.3                        | 579.2                      | 323.2                                  | 20.7           | 1.000073                  |
| 40500.0                        | 204.1                 | -53.3                                    |                      | 323.4                        | 577.7                      | 329.8                                  | 20.9           | 1.000072                  |
| 41000.0                        | 199.4                 | -54.2                                    |                      | 317.1                        | 576.5                      | 336.3                                  | 21.5           | 1.000071                  |
| 41500.0                        | 194.6                 | -55.3                                    |                      | 311.2                        | 575.0                      | 344.5                                  | 20.1           | 1.000069                  |
| 42000.0                        | 190.0                 | -56.5                                    |                      | 305.5                        | 573.5                      | 353.8                                  | 19.1           | 1.000068                  |
| 42500.0                        | 185.5                 | -57.6                                    |                      | 299.8                        | 572.0                      | 2.0                                    | 18.0           | 1.000067                  |
| 43000.0                        | 181.1                 | -58.8                                    |                      | 294.2                        | 570.4                      | 10.9                                   | 17.2           | 1.000066                  |
| 43500.0                        | 176.0                 | -59.9                                    |                      | 288.4                        | 568.9                      | 12.8                                   | 17.6           | 1.000064                  |

\*\* AT LAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4010.40 FEET MSL  
24 JUNE 81  
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UPPER AIR DATA  
1750220059  
NW 30

GEODETIC COORDINATES  
32.88497 LAT DEG  
106.49714 LON DEG

TABLE 7 (Con't)

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREES<br>CELSIUS | REL. HUM.<br>PERCENT | DENSITY<br>GM/CM <sup>3</sup> | SPEED OF<br>SOUND<br>KNOTS | WIND DATA<br>DIRECTION (TN)<br>DEGREES | SPEED<br>KNOTS | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|---------------------------------------|----------------------|-------------------------------|----------------------------|----------------------------------------|----------------|---------------------------|
| 44000.0                        | 172.6                 | -61.1                                 |                      | 283.5                         | 567.4                      | 12.5                                   | 18.2           | 1.000063                  |
| 44500.0                        | 169.4                 | -61.9                                 |                      | 277.7                         | 566.3                      | 15.9                                   | 18.9           | 1.000062                  |
| 45000.0                        | 164.3                 | -62.4                                 |                      | 271.7                         | 565.5                      | 21.2                                   | 20.0           | 1.000060                  |
| 45500.0                        | 160.3                 | -63.0                                 |                      | 265.8                         | 564.8                      | 28.4                                   | 21.1           | 1.000059                  |
| 46000.0                        | 156.4                 | -63.6                                 |                      | 260.1                         | 564.0                      | 38.2                                   | 22.5           | 1.000058                  |
| 46500.0                        | 152.6                 | -64.2                                 |                      | 254.5                         | 563.1                      | 47.6                                   | 24.2           | 1.000057                  |
| 47000.0                        | 148.9                 | -64.8                                 |                      | 248.9                         | 562.3                      | 58.0                                   | 25.7           | 1.000055                  |
| 47500.0                        | 145.2                 | -65.1                                 |                      | 243.2                         | 561.9                      | 68.7                                   | 27.8           | 1.000054                  |
| 48000.0                        | 141.6                 | -65.4                                 |                      | 237.5                         | 561.5                      | 80.3                                   | 28.1           | 1.000053                  |
| 48500.0                        | 138.2                 | -65.8                                 |                      | 232.1                         | 561.0                      | 91.2                                   | 29.5           | 1.000052                  |
| 49000.0                        | 134.7                 | -66.9                                 |                      | 227.5                         | 559.5                      | 99.0                                   | 27.0           | 1.000051                  |
| 49500.0                        | 131.4                 | -68.0                                 |                      | 223.1                         | 558.0                      | 108.1                                  | 24.9           | 1.000050                  |
| 50000.0                        | 128.1                 | -68.3                                 |                      | 217.9                         | 557.6                      | 109.5                                  | 22.2           | 1.000049                  |
| 50500.0                        | 124.9                 | -68.6                                 |                      | 212.7                         | 557.2                      | 109.8                                  | 19.4           | 1.000047                  |
| 51000.0                        | 121.8                 | -68.8                                 |                      | 207.7                         | 556.8                      | 106.2                                  | 17.4           | 1.000046                  |
| 51500.0                        | 118.7                 | -69.1                                 |                      | 202.7                         | 556.5                      | 100.0                                  | 16.0           | 1.000045                  |
| 52000.0                        | 115.8                 | -69.4                                 |                      | 197.9                         | 556.1                      | 94.7                                   | 15.2           | 1.000044                  |
| 52500.0                        | 112.9                 | -69.6                                 |                      | 193.2                         | 555.8                      | 90.9                                   | 14.8           | 1.000043                  |
| 53000.0                        | 110.0                 | -69.9                                 |                      | 188.6                         | 555.4                      | 86.6                                   | 14.6           | 1.000042                  |
| 53500.0                        | 107.3                 | -69.7                                 |                      | 183.7                         | 555.6                      | 81.8                                   | 15.0           | 1.000041                  |
| 54000.0                        | 104.6                 | -69.5                                 |                      | 178.9                         | 555.9                      | 76.5                                   | 15.6           | 1.000040                  |
| 54500.0                        | 102.0                 | -69.3                                 |                      | 174.3                         | 556.2                      | 69.9                                   | 17.0           | 1.000039                  |
| 55000.0                        | 99.4                  | -69.4                                 |                      | 170.0                         | 556.1                      | 67.2                                   | 18.0           | 1.000038                  |
| 55500.0                        | 96.9                  | -70.4                                 |                      | 166.5                         | 554.7                      | 74.5                                   | 17.6           | 1.000037                  |
| 56000.0                        | 94.5                  | -71.4                                 |                      | 163.1                         | 553.4                      | 82.1                                   | 17.4           | 1.000036                  |
| 56500.0                        | 92.1                  | -71.0                                 |                      | 158.7                         | 553.9                      | 92.5                                   | 16.9           | 1.000035                  |
| 57000.0                        | 89.8                  | -70.5                                 |                      | 154.4                         | 554.5                      | 103.2                                  | 16.9           | 1.000034                  |
| 57500.0                        | 87.5                  | -70.1                                 |                      | 150.2                         | 555.1                      | 107.0                                  | 17.0           | 1.000033                  |
| 58000.0                        | 85.3                  | -69.7                                 |                      | 146.1                         | 555.7                      | 104.5                                  | 16.6           | 1.000033                  |
| 58500.0                        | 83.2                  | -69.3                                 |                      | 142.1                         | 556.3                      | 102.0                                  | 16.3           | 1.000032                  |
| 59000.0                        | 81.1                  | -68.8                                 |                      | 138.2                         | 556.9                      | 99.0                                   | 16.2           | 1.000031                  |
| 59500.0                        | 79.1                  | -66.7                                 |                      | 133.4                         | 559.8                      | 97.3                                   | 16.1           | 1.000030                  |
| 60000.0                        | 77.1                  | -63.2                                 |                      | 127.9                         | 564.5                      | 94.9                                   | 15.1           | 1.000028                  |
| 60500.0                        | 75.3                  | -62.3                                 |                      | 124.3                         | 565.7                      | 92.1                                   | 13.9           | 1.000028                  |
| 61000.0                        | 73.4                  | -61.4                                 |                      | 120.8                         | 566.9                      | 88.8                                   | 12.6           | 1.000027                  |
| 61500.0                        | 71.7                  | -60.5                                 |                      | 117.4                         | 568.1                      | 84.7                                   | 11.1           | 1.000026                  |
| 62000.0                        | 69.9                  | -59.6                                 |                      | 114.1                         | 569.3                      | 79.5                                   | 9.8            | 1.000025                  |
| 62500.0                        | 68.3                  | -59.6                                 |                      | 111.4                         | 569.3                      | 70.9                                   | 10.5           | 1.000025                  |
| 63000.0                        | 66.6                  | -59.6                                 |                      | 108.7                         | 569.3                      | 74.7                                   | 11.2           | 1.000024                  |
| 63500.0                        | 65.0                  | -59.6                                 |                      | 106.1                         | 569.3                      | 77.9                                   | 13.1           | 1.000024                  |

STATION ALTITUDE 4010.40 FEET MSL  
24 JUNE 81  
ASCENSION NO. 59 0630 HRS MDT

UPPER AIR DATA  
1750220059  
NW 30

GEODETIC COORDINATES  
32.88497 LAT DEG  
106.49714 LON DEG

TABLE 7 (Con't)

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREES<br>CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA<br>DIRECTION<br>DEGREES(TN) | SPEED<br>KNOTS | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|------------------------------------------|----------------------|------------------------------|----------------------------|---------------------------------------|----------------|---------------------------|
| 64000.0                        | 63.5                  | -59.6                                    |                      | 103.6                        | 569.3                      | 81.5                                  | 15.6           | 1.000023                  |
| 64500.0                        | 62.0                  | -59.6                                    |                      | 101.1                        | 569.3                      | 85.4                                  | 17.8           | 1.000023                  |
| 65000.0                        | 60.5                  | -59.6                                    |                      | 98.7                         | 569.3                      | 89.7                                  | 19.8           | 1.000022                  |
| 65500.0                        | 59.0                  | -59.6                                    |                      | 96.3                         | 569.3                      | 92.3                                  | 21.8           | 1.000021                  |
| 66000.0                        | 57.6                  | -59.6                                    |                      | 94.0                         | 569.3                      | 91.3                                  | 23.6           | 1.000021                  |
| 66500.0                        | 56.3                  | -59.1                                    |                      | 91.6                         | 569.9                      | 90.4                                  | 25.5           | 1.000020                  |
| 67000.0                        | 54.9                  | -58.6                                    |                      | 89.2                         | 570.6                      | 89.7                                  | 26.4           | 1.000020                  |
| 67500.0                        | 53.6                  | -58.1                                    |                      | 86.8                         | 571.3                      | 88.9                                  | 26.8           | 1.000019                  |
| 68000.0                        | 52.3                  | -57.5                                    |                      | 84.6                         | 572.1                      | 88.1                                  | 27.2           | 1.000019                  |
| 68500.0                        | 51.1                  | -57.0                                    |                      | 82.4                         | 572.8                      | 85.8                                  | 27.0           | 1.000018                  |
| 69000.0                        | 49.9                  | -56.5                                    |                      | 80.2                         | 573.4                      | 82.9                                  | 26.7           | 1.000018                  |
| 69500.0                        | 48.7                  | -56.4                                    |                      | 78.3                         | 573.5                      | 80.0                                  | 26.4           | 1.000017                  |
| 70000.0                        | 47.6                  | -56.4                                    |                      | 76.5                         | 573.6                      | 79.3                                  | 26.2           | 1.000017                  |
| 70500.0                        | 46.4                  | -56.3                                    |                      | 74.6                         | 573.6                      | 78.7                                  | 25.9           | 1.000017                  |
| 71000.0                        | 45.4                  | -56.3                                    |                      | 72.9                         | 573.7                      | 78.3                                  | 25.7           | 1.000016                  |
| 71500.0                        | 44.3                  | -56.1                                    |                      | 71.1                         | 574.0                      | 80.7                                  | 25.3           | 1.000016                  |
| 72000.0                        | 43.3                  | -55.9                                    |                      | 69.4                         | 574.2                      | 83.2                                  | 25.0           | 1.000015                  |
| 72500.0                        | 42.2                  | -55.7                                    |                      | 67.7                         | 574.5                      | 85.4                                  | 24.8           | 1.000015                  |
| 73000.0                        | 41.3                  | -55.5                                    |                      | 66.0                         | 574.7                      | 87.0                                  | 24.8           | 1.000015                  |
| 73500.0                        | 40.3                  | -55.3                                    |                      | 64.4                         | 575.0                      | 88.5                                  | 24.9           | 1.000014                  |
| 74000.0                        | 39.3                  | -55.1                                    |                      | 62.9                         | 575.2                      | 89.6                                  | 24.8           | 1.000014                  |
| 74500.0                        | 38.4                  | -54.9                                    |                      | 61.3                         | 575.5                      | 90.2                                  | 24.5           | 1.000014                  |
| 75000.0                        | 37.5                  | -54.8                                    |                      | 59.9                         | 575.7                      | 90.9                                  | 24.1           | 1.000013                  |
| 75500.0                        | 36.6                  | -54.6                                    |                      | 58.4                         | 576.0                      | 91.2                                  | 24.8           | 1.000013                  |
| 76000.0                        | 35.8                  | -54.4                                    |                      | 57.0                         | 576.2                      | 91.3                                  | 25.8           | 1.000013                  |
| 76500.0                        | 35.0                  | -54.2                                    |                      | 55.6                         | 576.5                      | 91.5                                  | 26.9           | 1.000012                  |
| 77000.0                        | 34.1                  | -54.0                                    |                      | 54.3                         | 576.8                      | 90.9                                  | 29.8           | 1.000012                  |
| 77500.0                        | 33.3                  | -53.5                                    |                      | 52.9                         | 577.3                      | 90.4                                  | 32.8           | 1.000012                  |
| 78000.0                        | 32.6                  | -53.1                                    |                      | 51.6                         | 577.9                      | 90.0                                  | 35.3           | 1.000011                  |
| 78500.0                        | 31.8                  | -52.7                                    |                      | 50.3                         | 578.5                      | 89.8                                  | 35.6           | 1.000011                  |
| 79000.0                        | 31.1                  | -52.2                                    |                      | 49.0                         | 579.0                      | 89.6                                  | 35.9           | 1.000011                  |
| 79500.0                        | 30.4                  | -51.8                                    |                      | 47.8                         | 579.6                      | 88.9                                  | 34.8           | 1.000011                  |
| 80000.0                        | 29.7                  | -51.3                                    |                      | 46.6                         | 580.3                      | 87.5                                  | 32.3           | 1.000010                  |
| 80500.0                        | 29.0                  | -50.7                                    |                      | 45.4                         | 581.1                      | 85.8                                  | 29.9           | 1.000010                  |
| 81000.0                        | 28.3                  | -50.0                                    |                      | 44.2                         | 581.9                      | 85.3                                  | 29.8           | 1.000010                  |
| 81500.0                        | 27.7                  | -49.4                                    |                      | 43.1                         | 582.7                      | 85.2                                  | 30.3           | 1.000010                  |
| 82000.0                        | 27.1                  | -48.8                                    |                      | 42.0                         | 583.6                      | 85.1                                  | 30.9           | 1.000009                  |
| 82500.0                        | 26.5                  | -48.1                                    |                      | 41.0                         | 584.4                      | 86.4                                  | 33.2           | 1.000009                  |
| 83000.0                        | 25.9                  | -47.5                                    |                      | 39.9                         | 585.2                      | 87.5                                  | 35.6           | 1.000009                  |
| 83500.0                        | 25.3                  | -46.9                                    |                      | 38.9                         | 586.0                      | 88.0                                  | 37.8           | 1.000009                  |

STATION ALTITUDE 4010.00 FEET MSL  
24 JUNE 81  
ASCENSION NO. 59

UPPER AIR DATA  
1750220059  
NW 30

GEODETIC COORDINATES  
32.88497 LAT DEG  
106.49714 LON DEG

TABLE 7 (Con't)

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE    |                        | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA                 |                | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|----------------|------------------------|----------------------|------------------------------|----------------------------|---------------------------|----------------|---------------------------|
|                                |                       | AIR<br>DEGREES | DEWPOINT<br>CENTIGRADE |                      |                              |                            | DIRECTION<br>DEGREES (TN) | SPEED<br>KNOTS |                           |
| 04000.0                        | 24.7                  | -46.3          |                        |                      | 37.9                         | 586.8                      | 87.5                      | 39.6           | 1.000008                  |
| 04500.0                        | 24.1                  | -45.6          |                        |                      | 37.0                         | 587.6                      | 87.0                      | 41.4           | 1.000008                  |
| 05000.0                        | 23.6                  | -45.0          |                        |                      | 36.0                         | 588.4                      | 88.1                      | 40.8           | 1.000008                  |
| 05500.0                        | 23.1                  | -44.4          |                        |                      | 35.1                         | 589.3                      | 90.7                      | 38.1           | 1.000008                  |
| 06000.0                        | 22.5                  | -44.1          |                        |                      | 34.3                         | 589.6                      | 93.6                      | 35.5           | 1.000008                  |
| 06500.0                        | 22.0                  | -43.9          |                        |                      | 33.5                         | 589.8                      | 95.7                      | 33.7           | 1.000007                  |
| 07000.0                        | 21.6                  | -43.7          |                        |                      | 32.7                         | 590.1                      | 96.2                      | 32.7           | 1.000007                  |
| 07500.0                        | 21.1                  | -43.5          |                        |                      | 32.0                         | 590.4                      | 96.8                      | 31.7           | 1.000007                  |
| 08000.0                        | 20.6                  | -43.3          |                        |                      | 31.2                         | 590.6                      | 97.3                      | 30.7           | 1.000007                  |
| 08500.0                        | 20.1                  | -42.4          |                        |                      | 30.4                         | 591.8                      | 93.5                      | 32.5           | 1.000007                  |
| 09000.0                        | 19.7                  | -42.0          |                        |                      | 29.7                         | 592.3                      | 90.1                      | 34.3           | 1.000007                  |
| 09500.0                        | 19.3                  | -41.8          |                        |                      | 29.0                         | 592.6                      | 87.0                      | 36.2           | 1.000006                  |
| 10000.0                        | 18.8                  | -41.6          |                        |                      | 28.4                         | 592.8                      | 84.6                      | 38.1           | 1.000006                  |
| 10500.0                        | 18.4                  | -41.4          |                        |                      | 27.7                         | 593.0                      | 82.7                      | 39.8           | 1.000006                  |
| 11000.0                        | 18.0                  | -41.3          |                        |                      | 27.1                         | 593.2                      | 81.0                      | 41.6           | 1.000006                  |
| 11500.0                        | 17.6                  | -41.1          |                        |                      | 26.5                         | 593.5                      | 79.4                      | 43.4           | 1.000006                  |
| 12000.0                        | 17.2                  | -40.9          |                        |                      | 25.9                         | 593.7                      | 79.5                      | 43.9           | 1.000006                  |
| 12500.0                        | 16.9                  | -40.7          |                        |                      | 25.3                         | 593.9                      | 79.7                      | 44.4           | 1.000006                  |
| 13000.0                        | 16.5                  | -40.5          |                        |                      | 24.7                         | 594.2                      | 79.9                      | 44.9           | 1.000005                  |
| 13500.0                        | 16.1                  | -40.4          |                        |                      | 24.1                         | 594.4                      | 81.3                      | 45.0           | 1.000005                  |
| 14000.0                        | 15.8                  | -40.2          |                        |                      | 23.6                         | 594.6                      | 84.3                      | 44.6           | 1.000005                  |
| 14500.0                        | 15.4                  | -40.2          |                        |                      | 23.1                         | 594.7                      | 87.4                      | 44.3           | 1.000005                  |
| 15000.0                        | 15.1                  | -40.1          |                        |                      | 22.6                         | 594.7                      | 90.5                      | 44.2           | 1.000005                  |
| 15500.0                        | 14.8                  | -40.1          |                        |                      | 22.1                         | 594.8                      | 92.0                      | 44.9           | 1.000005                  |
| 16000.0                        | 14.4                  | -40.0          |                        |                      | 21.6                         | 594.8                      | 93.1                      | 45.6           | 1.000005                  |
| 16500.0                        | 14.1                  | -40.0          |                        |                      | 21.1                         | 594.9                      | 94.3                      | 46.4           | 1.000005                  |
| 17000.0                        | 13.8                  | -40.0          |                        |                      | 20.6                         | 594.9                      | 94.4                      | 46.7           | 1.000005                  |
| 17500.0                        | 13.5                  | -39.9          |                        |                      | 20.2                         | 595.0                      | 92.3                      | 46.0           | 1.000004                  |
| 18000.0                        | 13.2                  | -39.6          |                        |                      | 19.7                         | 595.4                      | 90.2                      | 45.4           | 1.000004                  |
| 18500.0                        | 12.9                  | -39.0          |                        |                      | 19.3                         | 596.1                      | 88.0                      | 44.8           | 1.000004                  |
| 19000.0                        | 12.7                  | -38.4          |                        |                      | 18.8                         | 596.8                      | 88.6                      | 43.5           | 1.000004                  |
| 19500.0                        | 12.4                  | -37.9          |                        |                      | 18.3                         | 597.5                      | 90.3                      | 42.0           | 1.000004                  |
| 20000.0                        | 12.1                  | -37.3          |                        |                      | 17.9                         | 598.2                      | 92.0                      | 40.6           | 1.000004                  |
| 20500.0                        | 11.9                  | -36.8          |                        |                      | 17.5                         | 599.0                      | 93.9                      | 39.7           | 1.000004                  |
| 21000.0                        | 11.6                  | -36.2          |                        |                      | 17.1                         | 599.7                      | 95.4                      | 42.4           | 1.000004                  |
| 21500.0                        | 11.4                  | -35.7          |                        |                      | 16.7                         | 600.4                      | 96.7                      | 45.1           | 1.000004                  |
| 22000.0                        | 11.1                  | -35.1          |                        |                      | 16.3                         | 601.1                      | 97.9                      | 47.7           | 1.000004                  |
| 22500.0                        | 10.9                  | -34.5          |                        |                      | 15.9                         | 601.8                      |                           |                | 1.000004                  |
| 23000.0                        | 10.6                  | -34.0          |                        |                      | 15.5                         | 602.5                      |                           |                | 1.000003                  |
| 23500.0                        | 10.4                  | -33.4          |                        |                      | 15.1                         | 603.2                      |                           |                | 1.000003                  |

STATION ALTITUDE 4010.40 FEET MSL  
24 JUNE 81  
ASCENSION NO. 59 0630 HRS MDT

UPPER AIR DATA  
1750220059  
NW 30

GEODETIC COORDINATES  
32.88497 LAT DEG  
106.49714 LON DEG

TABLE 7 Con't

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREES<br>DEWPOINT DEGREES<br>CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA<br>DIRECTION<br>DEGREES (TN) | SPEED<br>KNOTS | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|--------------------------------------------------------------|----------------------|------------------------------|----------------------------|----------------------------------------|----------------|---------------------------|
| 104000.0                       | 10.2                  | -32.9                                                        |                      | 14.8                         | 603.9                      |                                        |                | 1.000003                  |
| 104500.0                       | 10.0                  | -32.4                                                        |                      | 14.4                         | 604.5                      |                                        |                | 1.000003                  |
| 105000.0                       | 9.8                   | -32.1                                                        |                      | 14.1                         | 604.8                      |                                        |                | 1.000003                  |

STATION ALTITUDE 4010.40 FEET ASL  
24 JUNE 81  
ASCENSION NO. 59 0630 HRS MDT

MANDATORY LEVELS  
1750220059  
NW 30

GEODETIC COORDINATES  
32.88497 LAT DEG  
106.49714 LON DEG

TABLE 8

| PRESSURE GEOPOTENTIAL |         | TEMPERATURE    |                        | REL. HUM.<br>PERCENT | WIND DATA                |                |
|-----------------------|---------|----------------|------------------------|----------------------|--------------------------|----------------|
| MILLIBARS             | FEET    | AIR<br>DEGREES | DEWPOINT<br>CENTIGRADE |                      | DIRECTION<br>DEGREES(TN) | SPEED<br>KNOTS |
| 850.0                 | 4989.   | 24.6           | 12.2                   | 46.                  | 293.4                    | 2.7            |
| 800.0                 | 6723.   | 20.8           | 9.2                    | 47.                  | 222.2                    | 7.7            |
| 750.0                 | 8544.   | 18.1           | 6.2                    | 46.                  | 259.6                    | 13.8           |
| 700.0                 | 10474.  | 14.3           | 2.9                    | 46.                  | 255.2                    | 10.6           |
| 650.0                 | 12512.  | 9.7            | -1.1                   | 50.                  | 333.4                    | 11.0           |
| 600.0                 | 14673.  | 4.0            | -2.8                   | 61.                  | 1.0                      | 11.1           |
| 550.0                 | 16972.  | -2.1           | -4.5                   | 84.                  | 41.5                     | 15.4           |
| 500.0                 | 19435.  | -6.8           | -11.3                  | 70.                  | 62.0                     | 24.5           |
| 450.0                 | 22109.  | -12.6          | -16.5                  | 72.                  | 48.8                     | 17.7           |
| 400.0                 | 25029.  | -16.8          | -26.4                  | 43.                  | 48.2                     | 10.9           |
| 350.0                 | 28278.  | -23.5          | -34.6                  | 35.                  | 76.6                     | 8.5            |
| 300.0                 | 31904.  | -33.3          | -40.9                  | 46.                  | 337.3                    | 7.2            |
| 250.0                 | 36024.  | -43.3          |                        |                      | 320.6                    | 18.7           |
| 200.0                 | 40835.  | -54.0          |                        |                      | 335.2                    | 21.4           |
| 175.0                 | 43606.  | -60.4          |                        |                      | 12.7                     | 17.8           |
| 150.0                 | 46723.  | -64.7          |                        |                      | 55.1                     | 25.1           |
| 125.0                 | 50344.  | -68.6          |                        |                      | 109.8                    | 19.6           |
| 100.0                 | 54713.  | -69.2          |                        |                      | 65.8                     | 16.1           |
| 80.0                  | 59068.  | -68.6          |                        |                      | 98.5                     | 16.2           |
| 70.0                  | 61770.  | -59.6          |                        |                      | 79.9                     | 9.9            |
| 60.0                  | 64934.  | -59.6          |                        |                      | 90.7                     | 20.3           |
| 50.0                  | 68696.  | -56.5          |                        |                      | 83.4                     | 26.7           |
| 40.0                  | 73351.  | -55.3          |                        |                      | 88.8                     | 25.0           |
| 30.0                  | 79416.  | -51.6          |                        |                      | 88.3                     | 33.7           |
| 25.0                  | 83341.  | -46.6          |                        |                      | 87.8                     | 36.4           |
| 20.0                  | 88249.  | -42.1          |                        |                      | 92.6                     | 32.9           |
| 15.0                  | 94668.  | -40.1          |                        |                      | 91.0                     | 44.3           |
| 10.0                  | 103861. | -32.4          |                        |                      |                          |                |

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

GEODETIC COORDINATES  
33.16712 LAT DEG  
106.49511 LONG DEG

SIGNIFICANT LEVEL DATA  
1750030057  
JALLEN

STATION ALTITUDE 4051.00 FEET MSL  
24 JUNE 81 0745 HRS MDT  
ASCENSION NO. 57

TABLE 9

| PRESSURE GEOMETRIC<br>MILLIBARS MSL FEET | TEMPERATURE    |                        | REL. HUM.<br>PERCENT |
|------------------------------------------|----------------|------------------------|----------------------|
|                                          | AIR<br>DEGREES | DEWPOINT<br>CENTIGRADE |                      |
| 877.2                                    | 22.5           | 10.6                   | 47.0                 |
| 859.6                                    | 23.6           | 9.6                    | 41.0                 |
| 850.0                                    | 23.4           | 9.0                    | 40.0                 |
| 814.6                                    | 23.1           | 7.2                    | 36.0                 |
| 766.4                                    | 18.9           | 3.9                    | 37.0                 |
| 747.2                                    | 19.2           | 2.6                    | 33.0                 |
| 700.0                                    | 14.8           | -1.1                   | 36.0                 |
| 593.6                                    | 3.2            | -4.3                   | 58.0                 |
| 533.2                                    | -4.2           | -6.8                   | 82.0                 |
| 500.0                                    | -7.8           | -11.1                  | 77.0                 |
| 465.8                                    | -11.6          | -15.1                  | 75.0                 |
| 452.6                                    | -12.6          | -17.8                  | 65.0                 |
| 404.9                                    | -18.7          | -23.8                  | 64.0                 |
| 400.0                                    | -18.7          | -25.9                  | 53.0                 |
| 377.8                                    | -19.8          | -31.9                  | 33.0                 |
| 354.7                                    | -23.8          | -41.3                  | 18.0                 |
| 321.0                                    | -30.1          | -41.7                  | 31.0                 |
| 300.0                                    | -34.3          | -38.8                  | 63.0                 |
| 278.6                                    | -37.2          | -43.6                  | 51.0                 |
| 250.0                                    | -43.9          | -49.7                  | 52.0                 |
| 200.0                                    | -54.7          |                        |                      |
| 167.6                                    | -61.6          |                        |                      |
| 150.0                                    | -64.5          |                        |                      |
| 142.2                                    | -65.0          |                        |                      |
| 139.4                                    | -67.9          |                        |                      |
| 112.2                                    | -70.4          |                        |                      |
| 107.6                                    | -68.6          |                        |                      |
| 100.0                                    | -70.2          |                        |                      |

STATION ALTITUDE 4951.00 FEET MSL  
24 JUNE 61  
ASCENSION NO. 57 0745 HRS MDT

UPPER AIR DATA  
1750030057  
JALLEN

GEODETTIC COORDINATES  
33.16712 LAT DEG  
106.49511 LONG DEG

TABLE 10

| GEOMETRIC<br>ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE    |                        | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA                 |                | INDEX<br>OF<br>REFRACTION |
|-----------------------------------|-----------------------|----------------|------------------------|----------------------|------------------------------|----------------------------|---------------------------|----------------|---------------------------|
|                                   |                       | AIR<br>DEGREES | DEWPOINT<br>CENTIGRADE |                      |                              |                            | DIRECTION<br>DEGREES (TN) | SPEED<br>KNOTS |                           |
| 4051.0                            | 877.2                 | 22.5           | 10.6                   | 47.0                 | 1027.9                       | 671.7                      | 00                        | 0              | 1.000285                  |
| 4500.0                            | 863.6                 | 23.4           | 9.8                    | 42.4                 | 1009.2                       | 672.6                      | 215.1                     | .8             | 1.000277                  |
| 5000.0                            | 840.6                 | 23.4           | 9.0                    | 39.8                 | 991.8                        | 672.6                      | 215.1                     | 1.8            | 1.000271                  |
| 5500.0                            | 833.9                 | 23.3           | 8.2                    | 38.2                 | 975.3                        | 672.4                      | 215.1                     | 2.7            | 1.000264                  |
| 6000.0                            | 819.5                 | 23.1           | 7.5                    | 36.6                 | 950.9                        | 672.2                      | 216.9                     | 3.7            | 1.000258                  |
| 6500.0                            | 805.3                 | 22.3           | 6.6                    | 36.2                 | 945.1                        | 671.2                      | 222.4                     | 4.7            | 1.000253                  |
| 7000.0                            | 791.2                 | 21.1           | 5.6                    | 36.5                 | 932.7                        | 669.7                      | 228.2                     | 5.7            | 1.000248                  |
| 7500.0                            | 777.4                 | 19.9           | 4.7                    | 36.8                 | 920.4                        | 668.3                      | 234.2                     | 6.9            | 1.000243                  |
| 8000.0                            | 763.9                 | 18.9           | 3.7                    | 36.5                 | 907.4                        | 667.1                      | 241.3                     | 8.0            | 1.000238                  |
| 8500.0                            | 750.4                 | 19.1           | 2.8                    | 33.7                 | 891.0                        | 667.3                      | 247.7                     | 9.1            | 1.000232                  |
| 9000.0                            | 737.2                 | 18.3           | 2.0                    | 33.6                 | 878.0                        | 666.3                      | 258.6                     | 9.2            | 1.000227                  |
| 9500.0                            | 724.2                 | 17.1           | 1.3                    | 34.4                 | 866.1                        | 664.9                      | 270.2                     | 9.0            | 1.000223                  |
| 10000.0                           | 711.3                 | 15.9           | .6                     | 35.3                 | 854.5                        | 663.4                      | 285.9                     | 8.3            | 1.000219                  |
| 10500.0                           | 698.7                 | 14.7           | -1.1                   | 36.2                 | 842.9                        | 662.0                      | 302.0                     | 7.6            | 1.000216                  |
| 11000.0                           | 686.0                 | 13.4           | -4.4                   | 38.7                 | 831.3                        | 660.5                      | 319.4                     | 7.1            | 1.000213                  |
| 11500.0                           | 673.5                 | 12.1           | -7.7                   | 41.1                 | 819.9                        | 659.0                      | 331.2                     | 7.4            | 1.000210                  |
| 12000.0                           | 661.3                 | 10.8           | -11.1                  | 43.6                 | 808.7                        | 657.5                      | 338.9                     | 8.0            | 1.000207                  |
| 12500.0                           | 649.3                 | 9.5            | -15.5                  | 46.0                 | 797.7                        | 656.0                      | 341.3                     | 8.7            | 1.000204                  |
| 13000.0                           | 637.5                 | 8.2            | -20.0                  | 48.5                 | 786.8                        | 654.5                      | 344.9                     | 9.7            | 1.000201                  |
| 13500.0                           | 625.9                 | 6.9            | -25.5                  | 50.9                 | 776.1                        | 653.0                      | 350.2                     | 11.4           | 1.000197                  |
| 14000.0                           | 614.5                 | 5.6            | -31.1                  | 53.4                 | 765.0                        | 651.4                      | 355.6                     | 13.1           | 1.000194                  |
| 14500.0                           | 603.3                 | 4.3            | -37.7                  | 55.8                 | 755.2                        | 649.9                      | 1.1                       | 14.9           | 1.000191                  |
| 15000.0                           | 592.3                 | 3.0            | -44.3                  | 58.5                 | 744.9                        | 648.4                      | 8.8                       | 15.3           | 1.000188                  |
| 15500.0                           | 581.2                 | 1.7            | -46.6                  | 62.7                 | 734.4                        | 646.8                      | 19.2                      | 15.0           | 1.000185                  |
| 16000.0                           | 570.2                 | .4             | -50.0                  | 67.0                 | 724.1                        | 645.3                      | 30.2                      | 14.5           | 1.000183                  |
| 16500.0                           | 559.5                 | -0.9           | -54.4                  | 71.2                 | 713.9                        | 643.7                      | 41.5                      | 14.4           | 1.000180                  |
| 17000.0                           | 549.0                 | -2.2           | -59.9                  | 75.5                 | 703.9                        | 642.1                      | 51.0                      | 16.2           | 1.000177                  |
| 17500.0                           | 538.6                 | -3.5           | -65.5                  | 79.7                 | 694.0                        | 640.6                      | 60.5                      | 17.9           | 1.000174                  |
| 18000.0                           | 528.4                 | -4.7           | -71.4                  | 81.3                 | 684.0                        | 639.1                      | 64.0                      | 19.3           | 1.000171                  |
| 18500.0                           | 518.3                 | -5.8           | -78.7                  | 79.8                 | 673.7                        | 637.7                      | 64.3                      | 19.3           | 1.000167                  |
| 19000.0                           | 508.3                 | -6.9           | -10.0                  | 78.3                 | 663.6                        | 636.4                      | 63.3                      | 20.5           | 1.000163                  |
| 19500.0                           | 498.5                 | -8.0           | -11.3                  | 76.9                 | 653.6                        | 635.0                      | 61.5                      | 20.3           | 1.000160                  |
| 20000.0                           | 488.8                 | -9.0           | -12.4                  | 76.4                 | 643.5                        | 633.7                      | 59.6                      | 20.0           | 1.000156                  |
| 20500.0                           | 479.3                 | -10.1          | -13.5                  | 75.8                 | 633.6                        | 632.4                      | 57.8                      | 20.1           | 1.000153                  |
| 21000.0                           | 470.0                 | -11.1          | -14.6                  | 75.3                 | 623.8                        | 631.1                      | 56.1                      | 20.3           | 1.000150                  |
| 21500.0                           | 460.8                 | -12.0          | -16.1                  | 71.2                 | 613.7                        | 630.0                      | 55.2                      | 20.2           | 1.000146                  |
| 22000.0                           | 451.7                 | -12.7          | -17.9                  | 65.0                 | 603.4                        | 629.1                      | 54.2                      | 20.0           | 1.000143                  |
| 22500.0                           | 442.7                 | -13.8          | -19.0                  | 64.8                 | 594.0                        | 627.7                      | 52.4                      | 18.7           | 1.000140                  |
| 23000.0                           | 433.9                 | -14.9          | -20.1                  | 64.6                 | 584.7                        | 626.4                      | 50.0                      | 17.2           | 1.000137                  |
| 23500.0                           | 425.2                 | -16.0          | -21.1                  | 64.4                 | 575.5                        | 625.0                      | 48.0                      | 15.2           | 1.000135                  |

STATION ALTITUDE 4051.00 FEET MSL  
24 JUNE 81 0745 HRS MDT  
ASCENSION NO. 57

UPPER AIR DATA  
1750030057  
JALLEN

GEODETIC COORDINATES  
33.16712 LAT DEG  
106.49511 LONG DEG

TABLE 10 (Con't)

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREES<br>DEWPOINT<br>CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA<br>DIRECTION<br>DEGREES (TN) | SPEED<br>KNOTS | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|------------------------------------------------------|----------------------|------------------------------|----------------------------|----------------------------------------|----------------|---------------------------|
| 24000.0                        | 410.7                 | -17.1                                                | -22.2                | 64.3                         | 566.5                      | 623.7                                  | 47.5           | 1.000132                  |
| 24500.0                        | 400.4                 | -18.2                                                | -23.3                | 64.1                         | 557.7                      | 622.3                                  | 50.3           | 1.000130                  |
| 25000.0                        | 400.2                 | -18.7                                                | -25.7                | 53.6                         | 547.6                      | 621.7                                  | 53.4           | 1.000126                  |
| 25500.0                        | 392.2                 | -19.1                                                | -27.7                | 46.1                         | 537.4                      | 621.2                                  | 68.4           | 1.000123                  |
| 26000.0                        | 384.2                 | -19.5                                                | -29.9                | 38.9                         | 527.4                      | 620.6                                  | 74.2           | 1.000120                  |
| 26500.0                        | 376.4                 | -20.0                                                | -32.4                | 32.1                         | 517.9                      | 619.9                                  | 69.9           | 1.000118                  |
| 27000.0                        | 368.8                 | -21.3                                                | -35.2                | 27.2                         | 510.0                      | 618.3                                  | 60.2           | 1.000115                  |
| 27500.0                        | 361.2                 | -22.6                                                | -38.3                | 22.3                         | 502.2                      | 616.7                                  | 53.2           | 1.000113                  |
| 28000.0                        | 353.8                 | -24.0                                                | -41.3                | 18.3                         | 494.6                      | 615.0                                  | 47.6           | 1.000111                  |
| 28500.0                        | 346.5                 | -25.3                                                | -41.1                | 21.1                         | 486.6                      | 613.4                                  | 42.3           | 1.000109                  |
| 29000.0                        | 339.2                 | -26.6                                                | -41.1                | 23.8                         | 479.3                      | 611.8                                  | 37.2           | 1.000108                  |
| 29500.0                        | 332.2                 | -27.9                                                | -41.2                | 26.5                         | 471.6                      | 610.1                                  | 33.3           | 1.000106                  |
| 30000.0                        | 325.2                 | -29.3                                                | -41.5                | 29.3                         | 464.5                      | 608.4                                  | 29.7           | 1.000104                  |
| 30500.0                        | 318.4                 | -30.6                                                | -41.0                | 34.8                         | 457.2                      | 606.8                                  | 20.7           | 1.000103                  |
| 31000.0                        | 311.6                 | -31.9                                                | -39.8                | 45.0                         | 450.0                      | 605.1                                  | 10.0           | 1.000101                  |
| 31500.0                        | 305.0                 | -33.3                                                | -39.1                | 55.2                         | 442.8                      | 603.5                                  | 1.3            | 1.000100                  |
| 32000.0                        | 298.5                 | -34.5                                                | -39.2                | 62.2                         | 435.6                      | 601.9                                  | 354.2          | 1.000098                  |
| 32500.0                        | 292.0                 | -35.4                                                | -40.5                | 58.6                         | 427.7                      | 600.8                                  | 351.6          | 1.000096                  |
| 33000.0                        | 285.7                 | -36.2                                                | -41.9                | 55.1                         | 420.0                      | 599.7                                  | 351.0          | 1.000095                  |
| 33500.0                        | 279.6                 | -37.1                                                | -43.3                | 51.6                         | 412.5                      | 598.6                                  | 346.5          | 1.000093                  |
| 34000.0                        | 273.4                 | -38.4                                                | -44.6                | 51.2                         | 405.6                      | 597.0                                  | 340.8          | 1.000091                  |
| 34500.0                        | 267.4                 | -39.7                                                | -45.9                | 51.4                         | 399.0                      | 595.2                                  | 334.9          | 1.000090                  |
| 35000.0                        | 261.5                 | -41.1                                                | -47.1                | 51.6                         | 392.6                      | 593.5                                  | 329.3          | 1.000088                  |
| 35500.0                        | 255.7                 | -42.5                                                | -48.4                | 51.8                         | 386.2                      | 591.7                                  | 323.7          | 1.000087                  |
| 36000.0                        | 250.1                 | -43.9                                                | -49.7                | 52.0                         | 380.0                      | 589.9                                  | 315.8          | 1.000085                  |
| 36500.0                        | 244.4                 | -45.0                                                | -51.6                | 46.7**                       | 373.1                      | 588.5                                  | 308.9          | 1.000083                  |
| 37000.0                        | 238.8                 | -46.1                                                | -53.7                | 41.3**                       | 366.4                      | 587.0                                  | 302.6          | 1.000082                  |
| 37500.0                        | 233.3                 | -47.2                                                | -55.9                | 35.9**                       | 359.8                      | 585.6                                  | 296.8          | 1.000080                  |
| 38000.0                        | 228.0                 | -48.4                                                | -58.2                | 30.5**                       | 353.3                      | 584.1                                  | 290.9          | 1.000079                  |
| 38500.0                        | 222.8                 | -49.5                                                | -60.7                | 25.1**                       | 347.0                      | 582.6                                  | 284.9          | 1.000077                  |
| 39000.0                        | 217.7                 | -50.6                                                | -63.5                | 19.7**                       | 340.7                      | 581.2                                  | 304.3          | 1.000076                  |
| 39500.0                        | 212.7                 | -51.7                                                | -66.7                | 14.3**                       | 334.6                      | 579.7                                  | 310.6          | 1.000075                  |
| 40000.0                        | 207.8                 | -52.8                                                | -70.9                | 9.0**                        | 328.6                      | 578.2                                  | 316.2          | 1.000073                  |
| 40500.0                        | 203.1                 | -54.0                                                | -77.8                | 3.6**                        | 322.8                      | 576.8                                  | 321.1          | 1.000072                  |
| 41000.0                        | 198.4                 | -55.0                                                |                      |                              | 316.8                      | 575.4                                  | 326.4          | 1.000071                  |
| 41500.0                        | 193.6                 | -56.0                                                |                      |                              | 310.6                      | 574.1                                  | 333.9          | 1.000069                  |
| 42000.0                        | 189.0                 | -56.9                                                |                      |                              | 304.5                      | 572.9                                  | 342.8          | 1.000068                  |
| 42500.0                        | 184.5                 | -57.8                                                |                      |                              | 298.6                      | 571.6                                  | 351.7          | 1.000067                  |
| 43000.0                        | 180.1                 | -58.8                                                |                      |                              | 292.7                      | 570.4                                  | .3             | 1.000065                  |
| 43500.0                        | 175.9                 | -59.7                                                |                      |                              | 287.0                      | 569.1                                  | 1.0            | 1.000064                  |

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4051.00 FEET MSL  
24 JUNE 61 0745 HRS MDT  
ASCENSION NO. 57

UPPER AIR DATA  
175003005/  
JALLEN

GEODETTIC COORDINATES  
33.16712 LAT UEG  
106.49511 LON UEG

TABLE 10 (Con't)

| GEOMETRIC<br>ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR<br>DEGREES<br>CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA                 |                | INDEX<br>OF<br>REFRACTION |
|-----------------------------------|-----------------------|---------------------------------------------|----------------------|------------------------------|----------------------------|---------------------------|----------------|---------------------------|
|                                   |                       |                                             |                      |                              |                            | DIRECTION<br>DEGREES (TN) | SPEED<br>KNOTS |                           |
| 44000.0                           | 171.7                 | -60.7                                       |                      | 281.4                        | 567.9                      | 04                        | 20.6           | 1.000063                  |
| 44500.0                           | 167.6                 | -61.6                                       |                      | 276.0                        | 568.6                      | 6.0                       | 20.7           | 1.000061                  |
| 45000.0                           | 163.5                 | -62.2                                       |                      | 270.1                        | 565.8                      | 16.9                      | 20.3           | 1.000060                  |
| 45500.0                           | 159.5                 | -62.9                                       |                      | 264.3                        | 564.9                      | 30.0                      | 20.2           | 1.000059                  |
| 46000.0                           | 155.6                 | -63.5                                       |                      | 258.7                        | 564.0                      | 47.5                      | 20.9           | 1.000058                  |
| 46500.0                           | 151.9                 | -64.2                                       |                      | 253.1                        | 563.2                      | 62.4                      | 23.3           | 1.000056                  |
| 47000.0                           | 148.1                 | -64.6                                       |                      | 247.5                        | 562.6                      | 73.9                      | 23.7           | 1.000055                  |
| 47500.0                           | 144.5                 | -64.8                                       |                      | 241.7                        | 562.3                      | 84.6                      | 25.0           | 1.000054                  |
| 48000.0                           | 141.0                 | -65.3                                       |                      | 236.2                        | 561.7                      | 95.9                      | 25.6           | 1.000053                  |
| 48500.0                           | 137.5                 | -66.1                                       |                      | 231.3                        | 560.5                      | 107.2                     | 26.7           | 1.000052                  |
| 49000.0                           | 134.1                 | -67.0                                       |                      | 226.5                        | 559.4                      | 114.1                     | 26.6           | 1.000050                  |
| 49500.0                           | 130.7                 | -67.8                                       |                      | 221.8                        | 558.3                      | 117.9                     | 24.5           | 1.000049                  |
| 50000.0                           | 127.5                 | -68.3                                       |                      | 216.8                        | 557.6                      | 121.0                     | 22.5           | 1.000048                  |
| 50500.0                           | 124.3                 | -68.7                                       |                      | 211.8                        | 557.0                      | 117.7                     | 18.8           | 1.000047                  |
| 51000.0                           | 121.2                 | -69.1                                       |                      | 206.9                        | 556.5                      | 111.5                     | 15.3           | 1.000046                  |
| 51500.0                           | 118.1                 | -69.5                                       |                      | 202.1                        | 555.9                      | 102.0                     | 13.1           | 1.000045                  |
| 52000.0                           | 115.2                 | -70.0                                       |                      | 197.5                        | 555.3                      | 90.2                      | 12.1           | 1.000044                  |
| 52500.0                           | 112.3                 | -70.4                                       |                      | 192.9                        | 554.7                      |                           |                | 1.000043                  |
| 53000.0                           | 109.5                 | -69.3                                       |                      | 187.1                        | 556.2                      |                           |                | 1.000042                  |
| 53500.0                           | 106.7                 | -68.8                                       |                      | 181.9                        | 556.9                      |                           |                | 1.000041                  |
| 54000.0                           | 104.1                 | -69.3                                       |                      | 177.6                        | 556.2                      |                           |                | 1.000040                  |
| 54500.0                           | 101.4                 | -69.9                                       |                      | 173.9                        | 555.4                      |                           |                | 1.000039                  |

STATION ALTITUDE 4051.00 FEET MSL  
24 JUNE 81  
ASCENSION NO. 57

# MANDATORY LEVELS

1750030057

JALLEN

## TABLE 11

GEODETIC COORDINATES  
33.16712 LAT DEG  
106.49511 LONG DEG

| PRESSURE GEOPOTENTIAL<br>MILLIBARS | FEET   | AIR<br>DEGREES | TEMPERATURE<br>DEWPOINT<br>CENTIGRADE | REL. HUM.<br>PERCENT | WIND DATA                |                |
|------------------------------------|--------|----------------|---------------------------------------|----------------------|--------------------------|----------------|
|                                    |        |                |                                       |                      | DIRECTION<br>DEGREES(TN) | SPEED<br>KNOTS |
| 850.0                              | 4950.  | 23.4           | 9.0                                   | 40.                  | 215.1                    | 1.7            |
| 800.0                              | 6684.  | 21.9           | 6.2                                   | 36.                  | 223.9                    | 5.1            |
| 750.0                              | 8509.  | 19.2           | 2.8                                   | 34.                  | 240.0                    | 9.1            |
| 700.0                              | 10441. | 14.8           | -1.1                                  | 36.                  | 300.3                    | 7.7            |
| 650.0                              | 12479. | 9.6            | -1.5                                  | 46.                  | 341.2                    | 8.7            |
| 600.0                              | 14639. | 4.0            | -3.9                                  | 57.                  | 2.5                      | 15.4           |
| 550.0                              | 16937. | -2.1           | -5.9                                  | 75.                  | 50.1                     | 14.9           |
| 500.0                              | 19398. | -7.8           | -11.1                                 | 77.                  | 61.8                     | 20.4           |
| 450.0                              | 22062. | -12.9          | -18.1                                 | 65.                  | 54.1                     | 19.9           |
| 400.0                              | 24974. | -18.7          | -25.9                                 | 53.                  | 59.5                     | 7.7            |
| 350.0                              | 28212. | -24.6          | -41.2                                 | 20.                  | 45.0                     | 9.2            |
| 300.0                              | 31822. | -34.3          | -38.8                                 | 63.                  | 355.9                    | 11.2           |
| 250.0                              | 35932. | -43.9          | -49.7                                 | 52.                  | 315.9                    | 19.3           |
| 200.0                              | 40733. | -54.7          |                                       |                      | 324.1                    | 20.6           |
| 175.0                              | 43502. | -59.9          |                                       |                      | .9                       | 19.3           |
| 150.0                              | 46624. | -64.5          |                                       |                      | 67.7                     | 23.3           |
| 125.0                              | 50247. | -68.6          |                                       |                      | 118.9                    | 19.8           |
| 100.0                              | 54615. | -70.2          |                                       |                      |                          |                |

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.00 FEET MSL  
24 JUNE 81  
ASCENSION NO. 413

SIGNIFICANT LEVEL DATA

1750020413  
WHITE SANDS

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

TABLE 12

| PRESSURE GEOMETRIC<br>ALTITUDE<br>MILLIBARS MSL FEET | TEMPERATURE    |                        | REL. HUM.<br>PERCENT |
|------------------------------------------------------|----------------|------------------------|----------------------|
|                                                      | AIR<br>DEGREES | DEWPOINT<br>CENTIGRADE |                      |
| 880.1                                                | 26.0           | 12.5                   | 43.0                 |
| 859.4                                                | 24.0           | 12.0                   | 47.0                 |
| 850.4                                                | 25.5           | 12.4                   | 44.0                 |
| 783.2                                                | 21.7           | 8.6                    | 43.0                 |
| 700.0                                                | 14.9           | 2.8                    | 44.0                 |
| 683.2                                                | 13.6           | 1.9                    | 45.0                 |
| 587.0                                                | 3.0            | -3.3                   | 63.0                 |
| 500.0                                                | -7.8           | -10.3                  | 82.0                 |
| 489.6                                                | -8.7           | -10.8                  | 85.0                 |
| 474.2                                                | -10.2          | -13.8                  | 75.0                 |
| 451.0                                                | -13.3          | -16.5                  | 77.0                 |
| 428.6                                                | -13.8          | -21.9                  | 50.0                 |
| 400.0                                                | -17.2          | -27.5                  | 40.0                 |
| 343.6                                                | -25.9          | -38.6                  | 29.0                 |
| 330.6                                                | -27.0          | -37.5                  | 36.0                 |
| 300.0                                                | -33.3          | -41.5                  | 43.0                 |
| 263.6                                                | -40.6          | -49.1                  | 39.0                 |
| 250.0                                                | -44.0          |                        |                      |
| 200.0                                                | -54.7          |                        |                      |
| 172.0                                                | -61.4          |                        |                      |
| 150.0                                                | -64.7          |                        |                      |
| 135.0                                                | -68.4          |                        |                      |
| 124.0                                                | -68.6          |                        |                      |
| 120.0                                                | -67.3          |                        |                      |
| 103.4                                                | -67.3          |                        |                      |
| 100.0                                                | -68.7          |                        |                      |
| 88.0                                                 | -71.0          |                        |                      |
| 79.4                                                 | -61.4          |                        |                      |
| 74.2                                                 | -59.5          |                        |                      |
| 70.0                                                 | -62.4          |                        |                      |
| 66.2                                                 | -64.5          |                        |                      |
| 50.0                                                 | -56.1          |                        |                      |
| 39.8                                                 | -55.3          |                        |                      |
| 30.0                                                 | -47.6          |                        |                      |
| 20.0                                                 | -41.9          |                        |                      |
| 14.6                                                 | -35.9          |                        |                      |
| 13.0                                                 | -39.0          |                        |                      |
| 10.4                                                 | -37.7          |                        |                      |

STATION ALTITUDE 3989.00 FEET MSL  
24 JUNE 81  
ASCENSION NO. 413

UPPER AIR DATA  
1750020413  
WHITE SANDS

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

TABLE 13

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | AIR TEMPERATURE<br>DEGREES CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CM <sup>3</sup> | SPEED OF<br>SOUND<br>KNOTS | WIND DATA<br>DIRECTION<br>DEGREES (TN) | SPEED<br>KNOTS | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|---------------------------------------|----------------------|-------------------------------|----------------------------|----------------------------------------|----------------|---------------------------|
| 3989.0                         | 880.1                 | 26.0                                  | 43.0                 | 1018.5                        | 675.9                      | 125.0                                  | 5.1            | 1.000288                  |
| 4000.0                         | 879.8                 | 26.0                                  | 43.1                 | 1018.2                        | 675.9                      |                                        |                | 1.000288                  |
| 4500.0                         | 864.7                 | 24.5                                  | 46.0                 | 1005.7                        | 674.2                      |                                        |                | 1.000285                  |
| 5000.0                         | 849.8                 | 25.5                                  | 44.0                 | 985.0                         | 675.4                      |                                        |                | 1.000281                  |
| 5500.0                         | 835.1                 | 24.7                                  | 43.8                 | 970.9                         | 674.4                      |                                        |                | 1.000275                  |
| 6000.0                         | 820.7                 | 23.9                                  | 43.6                 | 956.9                         | 673.4                      |                                        |                | 1.000269                  |
| 6500.0                         | 806.5                 | 23.1                                  | 43.4                 | 943.1                         | 672.4                      |                                        |                | 1.000263                  |
| 7000.0                         | 792.6                 | 22.3                                  | 43.1                 | 929.6                         | 671.4                      |                                        |                | 1.000258                  |
| 7500.0                         | 778.9                 | 21.4                                  | 43.0                 | 916.4                         | 670.4                      |                                        |                | 1.000252                  |
| 8000.0                         | 765.2                 | 20.3                                  | 43.2                 | 903.8                         | 669.1                      |                                        |                | 1.000247                  |
| 8500.0                         | 751.7                 | 19.2                                  | 43.4                 | 891.3                         | 667.8                      |                                        |                | 1.000242                  |
| 9000.0                         | 738.5                 | 18.1                                  | 43.5                 | 879.1                         | 666.5                      |                                        |                | 1.000236                  |
| 9500.0                         | 725.5                 | 17.1                                  | 43.7                 | 867.0                         | 665.2                      |                                        |                | 1.000231                  |
| 10000.0                        | 712.7                 | 16.0                                  | 43.8                 | 855.1                         | 663.9                      |                                        |                | 1.000227                  |
| 10500.0                        | 700.2                 | 14.9                                  | 44.0                 | 843.4                         | 662.6                      |                                        |                | 1.000222                  |
| 11000.0                        | 687.7                 | 14.0                                  | 44.7                 | 831.2                         | 661.4                      |                                        |                | 1.000218                  |
| 11500.0                        | 675.3                 | 12.8                                  | 46.4                 | 819.6                         | 660.0                      |                                        |                | 1.000214                  |
| 12000.0                        | 663.0                 | 11.5                                  | 48.6                 | 808.3                         | 658.5                      |                                        |                | 1.000211                  |
| 12500.0                        | 650.9                 | 10.2                                  | 50.7                 | 797.3                         | 657.0                      |                                        |                | 1.000207                  |
| 13000.0                        | 639.0                 | 8.9                                   | 52.9                 | 786.4                         | 655.5                      |                                        |                | 1.000204                  |
| 13500.0                        | 627.4                 | 7.6                                   | 55.1                 | 775.6                         | 654.0                      | 59.0                                   | 11.4           | 1.000201                  |
| 14000.0                        | 616.0                 | 6.4                                   | 57.3                 | 765.1                         | 652.4                      | 68.6                                   | 12.2           | 1.000197                  |
| 14500.0                        | 604.7                 | 5.1                                   | 59.5                 | 754.7                         | 650.9                      | 74.8                                   | 12.7           | 1.000194                  |
| 15000.0                        | 593.7                 | 3.8                                   | 61.7                 | 744.5                         | 649.3                      | 79.0                                   | 12.9           | 1.000190                  |
| 15500.0                        | 582.7                 | 2.5                                   | 63.9                 | 734.2                         | 647.8                      |                                        |                | 1.000187                  |
| 16000.0                        | 571.7                 | 1.2                                   | 66.1                 | 723.7                         | 646.2                      | 77.2                                   | 13.7           | 1.000183                  |
| 16500.0                        | 560.9                 | -1.1                                  | 68.4                 | 713.5                         | 644.7                      | 73.8                                   | 14.8           | 1.000180                  |
| 17000.0                        | 550.2                 | -1.4                                  | 70.7                 | 703.4                         | 643.1                      | 74.5                                   | 16.0           | 1.000177                  |
| 17500.0                        | 539.8                 | -2.6                                  | 72.9                 | 693.4                         | 641.6                      | 75.5                                   | 17.0           | 1.000173                  |
| 18000.0                        | 529.6                 | -3.9                                  | 75.2                 | 683.6                         | 640.0                      | 81.0                                   | 16.5           | 1.000170                  |
| 18500.0                        | 519.6                 | -5.2                                  | 77.5                 | 673.9                         | 638.4                      | 86.4                                   | 16.0           | 1.000167                  |
| 19000.0                        | 509.7                 | -6.5                                  | 79.7                 | 664.4                         | 636.9                      | 90.3                                   | 14.7           | 1.000164                  |
| 19500.0                        | 500.1                 | -7.8                                  | 82.0                 | 655.1                         | 635.3                      | 93.5                                   | 13.4           | 1.000161                  |
| 20000.0                        | 490.4                 | -8.6                                  | 84.8                 | 644.5                         | 634.3                      | 93.6                                   | 11.6           | 1.000158                  |
| 20500.0                        | 480.8                 | -9.5                                  | 79.3                 | 634.3                         | 633.1                      | 93.9                                   | 10.2           | 1.000154                  |
| 21000.0                        | 471.5                 | -10.6                                 | 75.2                 | 624.4                         | 631.8                      | 94.3                                   | 9.1            | 1.000150                  |
| 21500.0                        | 462.2                 | -11.8                                 | 76.0                 | 615.1                         | 630.3                      | 92.0                                   | 8.5            | 1.000147                  |
| 22000.0                        | 453.1                 | -13.0                                 | 76.8                 | 605.9                         | 628.8                      | 80.1                                   | 8.8            | 1.000145                  |
| 22500.0                        | 444.2                 | -13.4                                 | 68.9                 | 595.1                         | 628.2                      | 80.7                                   | 9.1            | 1.000141                  |
| 23000.0                        | 435.4                 | -13.6                                 | 58.4                 | 583.9                         | 627.9                      | 76.1                                   | 9.4            | 1.000137                  |

XX WIND DATA INVALID DUE TO MISSING RAW AZIMUTH AND ELEVATION ANGLES.

STATION ALTITUDE 3989.00 FEET MSL  
 24 JUNE 81 0915 HRS MDT  
 ASCENSION NO. 413

UPPER AIR DATA  
 1750020413  
 WHITE SANDS

GEODETIC COORDINATES  
 32.40043 LAT UEG  
 106.37033 LON UEG

TABLE 13 (Con't)

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREES<br>CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA<br>DIRECTION<br>DEGREES(TN) | SPEED<br>KNOTS | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|------------------------------------------|----------------------|------------------------------|----------------------------|---------------------------------------|----------------|---------------------------|
| 23500.0                        | 420.8                 | -14.0                                    | 49.4                 | 573.2                        | 627.4                      | 72.9                                  | 9.9            | 1.000133                  |
| 24000.0                        | 418.3                 | -15.0                                    | 46.5                 | 564.0                        | 626.2                      | 74.1                                  | 10.6           | 1.000131                  |
| 24500.0                        | 410.0                 | -16.0                                    | 43.6                 | 555.0                        | 625.0                      | 75.1                                  | 11.3           | 1.000128                  |
| 25000.0                        | 401.8                 | -17.0                                    | 40.6                 | 546.1                        | 623.7                      | 76.2                                  | 12.0           | 1.000125                  |
| 25500.0                        | 393.6                 | -18.1                                    | 38.8                 | 537.4                        | 622.3                      | 77.1                                  | 12.7           | 1.000123                  |
| 26000.0                        | 385.6                 | -19.3                                    | 37.3                 | 528.9                        | 620.9                      | 78.9                                  | 12.4           | 1.000121                  |
| 26500.0                        | 377.7                 | -20.5                                    | 35.9                 | 520.6                        | 619.4                      | 80.9                                  | 12.0           | 1.000118                  |
| 27000.0                        | 370.0                 | -21.7                                    | 34.4                 | 512.4                        | 617.9                      | 81.2                                  | 11.8           | 1.000116                  |
| 27500.0                        | 362.5                 | -22.8                                    | 32.9                 | 504.3                        | 616.5                      | 81.0                                  | 11.7           | 1.000114                  |
| 28000.0                        | 355.1                 | -24.0                                    | 31.4                 | 496.4                        | 615.0                      | 74.4                                  | 11.4           | 1.000112                  |
| 28500.0                        | 347.9                 | -25.2                                    | 29.9                 | 488.6                        | 613.5                      | 63.9                                  | 11.3           | 1.000110                  |
| 29000.0                        | 340.7                 | -26.1                                    | 30.5                 | 480.4                        | 612.4                      | 54.2                                  | 11.0           | 1.000108                  |
| 29500.0                        | 333.6                 | -27.7                                    | 34.4                 | 471.5                        | 611.6                      | 44.5                                  | 10.4           | 1.000106                  |
| 30000.0                        | 326.6                 | -27.8                                    | 36.9                 | 463.6                        | 610.3                      | 37.0                                  | 10.1           | 1.000105                  |
| 30500.0                        | 319.7                 | -29.2                                    | 38.4                 | 456.4                        | 608.6                      | 32.4                                  | 9.9            | 1.000103                  |
| 31000.0                        | 313.0                 | -30.6                                    | 39.9                 | 449.3                        | 606.9                      | 29.3                                  | 9.9            | 1.000101                  |
| 31500.0                        | 306.4                 | -31.9                                    | 41.5                 | 442.4                        | 605.1                      | 28.5                                  | 10.3           | 1.000100                  |
| 32000.0                        | 299.9                 | -33.3                                    | 43.0                 | 435.5                        | 603.4                      | 28.9                                  | 10.8           | 1.000098                  |
| 32500.0                        | 293.4                 | -34.6                                    | 42.3                 | 428.3                        | 601.8                      | 31.1                                  | 11.6           | 1.000096                  |
| 33000.0                        | 287.0                 | -35.8                                    | 41.6                 | 421.2                        | 600.2                      | 33.1                                  | 12.5           | 1.000095                  |
| 33500.0                        | 280.8                 | -37.0                                    | 41.0                 | 414.2                        | 598.7                      | 34.6                                  | 14.1           | 1.000093                  |
| 34000.0                        | 274.7                 | -38.3                                    | 40.3                 | 407.4                        | 597.1                      | 35.5                                  | 15.6           | 1.000091                  |
| 34500.0                        | 268.7                 | -39.5                                    | 39.6                 | 400.7                        | 595.5                      | 33.4                                  | 15.8           | 1.000090                  |
| 35000.0                        | 262.9                 | -40.8                                    | 37.0**               | 394.1                        | 593.9                      | 31.4                                  | 16.0           | 1.000088                  |
| 35500.0                        | 257.1                 | -42.2                                    | 20.5**               | 387.7                        | 592.0                      | 22.7                                  | 15.6           | 1.000087                  |
| 36000.0                        | 251.3                 | -43.7                                    | 4.0**                | 381.5                        | 590.2                      | 11.2                                  | 15.4           | 1.000085                  |
| 36500.0                        | 245.6                 | -44.8                                    |                      | 374.8                        | 588.6                      | .2                                    | 15.7           | 1.000083                  |
| 37000.0                        | 240.0                 | -46.0                                    |                      | 368.0                        | 587.2                      | 349.9                                 | 16.1           | 1.000082                  |
| 37500.0                        | 234.5                 | -47.1                                    |                      | 361.4                        | 585.8                      | 341.1                                 | 17.0           | 1.000080                  |
| 38000.0                        | 229.2                 | -48.2                                    |                      | 354.8                        | 584.3                      | 339.6                                 | 17.2           | 1.000079                  |
| 38500.0                        | 223.9                 | -49.3                                    |                      | 348.4                        | 582.9                      | 338.1                                 | 17.5           | 1.000078                  |
| 39000.0                        | 218.8                 | -50.4                                    |                      | 342.2                        | 581.4                      | 340.0                                 | 18.2           | 1.000076                  |
| 39500.0                        | 213.8                 | -51.5                                    |                      | 336.0                        | 580.0                      | 343.1                                 | 19.0           | 1.000075                  |
| 40000.0                        | 208.9                 | -52.6                                    |                      | 330.0                        | 578.5                      | 346.4                                 | 19.6           | 1.000073                  |
| 40500.0                        | 204.1                 | -53.7                                    |                      | 324.0                        | 577.1                      | 350.8                                 | 19.3           | 1.000072                  |
| 41000.0                        | 199.4                 | -54.8                                    |                      | 318.2                        | 575.6                      | 355.3                                 | 19.2           | 1.000071                  |
| 41500.0                        | 194.7                 | -55.9                                    |                      | 312.2                        | 574.2                      | .7                                    | 18.6           | 1.000070                  |
| 42000.0                        | 190.0                 | -57.0                                    |                      | 306.2                        | 572.8                      | 6.6                                   | 18.1           | 1.000068                  |
| 42500.0                        | 185.5                 | -58.0                                    |                      | 300.4                        | 571.4                      | 11.0                                  | 18.0           | 1.000067                  |
| 43000.0                        | 181.1                 | -59.1                                    |                      | 294.8                        | 570.0                      | 12.5                                  | 18.4           | 1.000066                  |

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

UPPER AIR DATA  
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STATION ALTITUDE 3989.00 FEET MSL  
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ASCENSION NO. 413

GEODETIC COORDINATES  
32.40043 LAT UEG  
106.37033 LON DEG

TABLE 13 (Con't)

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREES | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA<br>DIRECTION<br>DEGREES (TN) | SPEED<br>KNOTS | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|----------------------------|----------------------|------------------------------|----------------------------|----------------------------------------|----------------|---------------------------|
| 43500.0                        | 176.8                 | -60.2                      |                      | 289.2                        | 568.5                      | 13.9                                   | 18.8           | 1.000064                  |
| 44000.0                        | 172.6                 | -61.2                      |                      | 283.7                        | 567.1                      | 20.5                                   | 18.9           | 1.000063                  |
| 44500.0                        | 168.4                 | -61.9                      |                      | 277.7                        | 566.2                      | 27.8                                   | 19.3           | 1.000062                  |
| 45000.0                        | 164.3                 | -62.5                      |                      | 271.7                        | 565.4                      | 37.4                                   | 19.8           | 1.000061                  |
| 45500.0                        | 160.3                 | -63.1                      |                      | 265.9                        | 564.6                      | 54.2                                   | 20.7           | 1.000059                  |
| 46000.0                        | 156.4                 | -63.7                      |                      | 260.1                        | 563.8                      | 68.5                                   | 23.1           | 1.000058                  |
| 46500.0                        | 152.6                 | -64.3                      |                      | 254.5                        | 563.0                      | 79.4                                   | 25.1           | 1.000057                  |
| 47000.0                        | 148.9                 | -65.0                      |                      | 249.1                        | 562.1                      | 88.8                                   | 26.6           | 1.000055                  |
| 47500.0                        | 145.2                 | -65.8                      |                      | 244.0                        | 560.9                      | 96.9                                   | 28.8           | 1.000054                  |
| 48000.0                        | 141.6                 | -66.7                      |                      | 238.9                        | 559.7                      | 102.3                                  | 27.4           | 1.000053                  |
| 48500.0                        | 138.1                 | -67.6                      |                      | 234.0                        | 558.5                      | 108.0                                  | 25.1           | 1.000052                  |
| 49000.0                        | 134.7                 | -68.4                      |                      | 229.1                        | 557.4                      | 114.8                                  | 23.0           | 1.000051                  |
| 49500.0                        | 131.3                 | -68.5                      |                      | 223.5                        | 557.4                      | 113.0                                  | 19.7           | 1.000050                  |
| 50000.0                        | 128.0                 | -68.5                      |                      | 217.9                        | 557.3                      | 108.1                                  | 16.3           | 1.000049                  |
| 50500.0                        | 124.8                 | -68.6                      |                      | 212.6                        | 557.2                      | 100.6                                  | 13.1           | 1.000047                  |
| 51000.0                        | 121.7                 | -67.9                      |                      | 206.5                        | 558.2                      | 90.9                                   | 12.8           | 1.000046                  |
| 51500.0                        | 118.7                 | -67.3                      |                      | 200.9                        | 558.9                      | 81.5                                   | 13.2           | 1.000045                  |
| 52000.0                        | 115.7                 | -67.3                      |                      | 195.9                        | 558.9                      | 72.9                                   | 13.9           | 1.000044                  |
| 52500.0                        | 112.9                 | -67.3                      |                      | 191.0                        | 558.9                      | 74.3                                   | 13.6           | 1.000043                  |
| 53000.0                        | 110.1                 | -67.3                      |                      | 186.3                        | 558.9                      | 77.4                                   | 13.1           | 1.000041                  |
| 53500.0                        | 107.3                 | -67.3                      |                      | 181.6                        | 558.9                      | 80.4                                   | 12.6           | 1.000040                  |
| 54000.0                        | 104.7                 | -67.3                      |                      | 177.1                        | 558.9                      | 81.5                                   | 11.9           | 1.000039                  |
| 54500.0                        | 102.1                 | -67.8                      |                      | 173.2                        | 558.2                      | 82.8                                   | 11.3           | 1.000039                  |
| 55000.0                        | 99.5                  | -68.8                      |                      | 169.6                        | 556.9                      | 86.8                                   | 11.3           | 1.000038                  |
| 55500.0                        | 97.0                  | -69.2                      |                      | 165.8                        | 556.3                      | 93.6                                   | 12.5           | 1.000037                  |
| 56000.0                        | 94.6                  | -69.7                      |                      | 162.0                        | 555.7                      | 99.2                                   | 13.8           | 1.000036                  |
| 56500.0                        | 92.2                  | -70.2                      |                      | 158.2                        | 555.1                      | 100.7                                  | 14.7           | 1.000035                  |
| 57000.0                        | 89.9                  | -70.6                      |                      | 154.6                        | 554.4                      | 100.5                                  | 15.2           | 1.000034                  |
| 57500.0                        | 87.6                  | -70.6                      |                      | 150.7                        | 554.4                      | 100.2                                  | 15.8           | 1.000034                  |
| 58000.0                        | 85.5                  | -68.3                      |                      | 145.3                        | 557.6                      | 98.5                                   | 15.2           | 1.000032                  |
| 58500.0                        | 83.4                  | -66.0                      |                      | 140.2                        | 560.8                      | 96.2                                   | 14.5           | 1.000031                  |
| 59000.0                        | 81.3                  | -63.6                      |                      | 135.2                        | 563.9                      | 93.6                                   | 13.7           | 1.000030                  |
| 59500.0                        | 79.3                  | -61.4                      |                      | 130.4                        | 566.9                      | 93.1                                   | 13.7           | 1.000029                  |
| 60000.0                        | 77.4                  | -60.7                      |                      | 126.9                        | 567.9                      | 92.8                                   | 13.7           | 1.000028                  |
| 60500.0                        | 75.5                  | -60.0                      |                      | 123.5                        | 568.8                      | 92.4                                   | 13.8           | 1.000027                  |
| 61000.0                        | 73.7                  | -59.8                      |                      | 120.4                        | 569.0                      | 93.7                                   | 13.6           | 1.000027                  |
| 61500.0                        | 72.0                  | -61.0                      |                      | 118.2                        | 567.4                      | 95.1                                   | 13.4           | 1.000026                  |
| 62000.0                        | 70.2                  | -62.2                      |                      | 116.0                        | 565.8                      | 90.5                                   | 13.2           | 1.000026                  |
| 62500.0                        | 68.5                  | -63.2                      |                      | 113.7                        | 564.5                      | 93.9                                   | 12.6           | 1.000025                  |
| 63000.0                        | 66.8                  | -64.1                      |                      | 111.4                        | 563.2                      | 90.5                                   | 11.9           | 1.000025                  |

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GEODETIC COORDINATES  
32.40043 LAT UEG  
106.37033 LON UEG

TABLE 13 (Con't)

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREES<br>CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA                |                | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|------------------------------------------|----------------------|------------------------------|----------------------------|--------------------------|----------------|---------------------------|
|                                |                       |                                          |                      |                              |                            | DIRECTION<br>DEGREES(TN) | SPEED<br>KNOTS |                           |
| 63500.0                        | 65.2                  | -64.1                                    |                      | 108.7                        | 563.3                      | 87.8                     | 12.3           | 1.000024                  |
| 64000.0                        | 63.7                  | -63.3                                    |                      | 105.7                        | 564.3                      | 88.1                     | 15.9           | 1.000024                  |
| 64500.0                        | 62.1                  | -62.6                                    |                      | 102.8                        | 565.3                      | 88.4                     | 19.4           | 1.000023                  |
| 65000.0                        | 60.6                  | -61.9                                    |                      | 100.0                        | 566.3                      | 92.2                     | 22.6           | 1.000022                  |
| 65500.0                        | 59.2                  | -61.2                                    |                      | 97.3                         | 567.2                      | 97.1                     | 25.7           | 1.000022                  |
| 66000.0                        | 57.8                  | -60.4                                    |                      | 94.6                         | 568.2                      | 100.9                    | 28.9           | 1.000021                  |
| 66500.0                        | 56.4                  | -59.7                                    |                      | 92.0                         | 569.2                      | 102.7                    | 27.6           | 1.000020                  |
| 67000.0                        | 55.0                  | -59.0                                    |                      | 89.5                         | 570.1                      | 104.6                    | 26.4           | 1.000020                  |
| 67500.0                        | 53.7                  | -58.2                                    |                      | 87.1                         | 571.1                      | 105.5                    | 25.3           | 1.000019                  |
| 68000.0                        | 52.4                  | -57.5                                    |                      | 84.7                         | 572.1                      | 104.6                    | 24.1           | 1.000019                  |
| 68500.0                        | 51.2                  | -56.8                                    |                      | 82.4                         | 573.0                      | 103.5                    | 22.9           | 1.000018                  |
| 69000.0                        | 49.9                  | -56.1                                    |                      | 80.2                         | 574.0                      | 101.1                    | 22.2           | 1.000018                  |
| 69500.0                        | 48.8                  | -56.0                                    |                      | 78.2                         | 574.1                      | 98.0                     | 21.8           | 1.000017                  |
| 70000.0                        | 47.6                  | -55.9                                    |                      | 76.4                         | 574.2                      | 94.9                     | 21.4           | 1.000017                  |
| 70500.0                        | 46.5                  | -55.8                                    |                      | 74.6                         | 574.3                      | 93.7                     | 22.8           | 1.000017                  |
| 71000.0                        | 45.4                  | -55.8                                    |                      | 72.8                         | 574.4                      | 92.6                     | 24.2           | 1.000016                  |
| 71500.0                        | 44.4                  | -55.7                                    |                      | 71.0                         | 574.5                      | 92.3                     | 25.3           | 1.000016                  |
| 72000.0                        | 43.3                  | -55.6                                    |                      | 69.4                         | 574.6                      | 93.2                     | 26.0           | 1.000015                  |
| 72500.0                        | 42.3                  | -55.5                                    |                      | 67.7                         | 574.7                      | 94.2                     | 26.7           | 1.000015                  |
| 73000.0                        | 41.3                  | -55.4                                    |                      | 66.1                         | 574.8                      | 94.7                     | 27.4           | 1.000015                  |
| 73500.0                        | 40.3                  | -55.3                                    |                      | 64.5                         | 574.9                      | 94.1                     | 28.1           | 1.000014                  |
| 74000.0                        | 39.4                  | -55.0                                    |                      | 62.9                         | 575.4                      | 93.5                     | 28.8           | 1.000014                  |
| 74500.0                        | 38.5                  | -54.4                                    |                      | 61.3                         | 576.2                      | 93.2                     | 29.5           | 1.000014                  |
| 75000.0                        | 37.6                  | -53.8                                    |                      | 59.7                         | 577.0                      | 94.5                     | 29.6           | 1.000013                  |
| 75500.0                        | 36.7                  | -53.1                                    |                      | 58.2                         | 577.9                      | 95.8                     | 29.8           | 1.000013                  |
| 76000.0                        | 35.9                  | -52.5                                    |                      | 56.7                         | 578.7                      | 97.0                     | 30.0           | 1.000013                  |
| 76500.0                        | 35.1                  | -51.8                                    |                      | 55.2                         | 579.5                      | 97.1                     | 29.9           | 1.000012                  |
| 77000.0                        | 34.3                  | -51.2                                    |                      | 53.8                         | 580.4                      | 97.3                     | 29.8           | 1.000012                  |
| 77500.0                        | 33.5                  | -50.6                                    |                      | 52.4                         | 581.2                      | 97.4                     | 29.7           | 1.000012                  |
| 78000.0                        | 32.7                  | -49.9                                    |                      | 51.0                         | 582.0                      | 94.4                     | 30.6           | 1.000011                  |
| 78500.0                        | 31.9                  | -49.3                                    |                      | 49.7                         | 582.9                      | 91.0                     | 31.8           | 1.000011                  |
| 79000.0                        | 31.2                  | -48.7                                    |                      | 48.4                         | 583.7                      | 87.9                     | 33.1           | 1.000011                  |
| 79500.0                        | 30.5                  | -48.0                                    |                      | 47.2                         | 584.5                      | 87.6                     | 34.4           | 1.000011                  |
| 80000.0                        | 29.8                  | -47.5                                    |                      | 46.0                         | 585.2                      | 88.0                     | 35.8           | 1.000010                  |
| 80500.0                        | 29.1                  | -47.2                                    |                      | 44.9                         | 585.6                      | 88.3                     | 37.1           | 1.000010                  |
| 81000.0                        | 28.5                  | -46.9                                    |                      | 43.8                         | 586.0                      | 89.6                     | 38.3           | 1.000010                  |
| 81500.0                        | 27.8                  | -46.6                                    |                      | 42.8                         | 586.4                      | 91.0                     | 39.4           | 1.000010                  |
| 82000.0                        | 27.2                  | -46.2                                    |                      | 41.8                         | 586.9                      | 92.4                     | 40.6           | 1.000009                  |
| 82500.0                        | 26.6                  | -45.9                                    |                      | 40.8                         | 587.3                      | 92.5                     | 41.0           | 1.000009                  |
| 83000.0                        | 26.0                  | -45.6                                    |                      | 39.8                         | 587.7                      | 92.3                     | 41.3           | 1.000009                  |

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UPPER AIR DATA  
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Table 13 (Con't)

GEODETTIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREES | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA<br>DIRECTION<br>DEGREES(TN) | SPEED<br>KNOTS | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|----------------------------|----------------------|------------------------------|----------------------------|---------------------------------------|----------------|---------------------------|
| 83500.0                        | 25.4                  | -45.3                      |                      | 38.9                         | 588.1                      | 92.1                                  | 41.5           | 1.000009                  |
| 84000.0                        | 24.9                  | -45.0                      |                      | 38.0                         | 588.5                      | 91.4                                  | 41.6           | 1.000008                  |
| 84500.0                        | 24.3                  | -44.6                      |                      | 37.1                         | 588.9                      | 90.4                                  | 41.6           | 1.000008                  |
| 85000.0                        | 23.8                  | -44.3                      |                      | 36.2                         | 589.3                      | 89.5                                  | 41.7           | 1.000008                  |
| 85500.0                        | 23.2                  | -44.0                      |                      | 35.3                         | 589.7                      | 89.3                                  | 41.8           | 1.000008                  |
| 86000.0                        | 22.7                  | -43.7                      |                      | 34.5                         | 590.1                      | 89.4                                  | 41.9           | 1.000008                  |
| 86500.0                        | 22.2                  | -43.4                      |                      | 33.7                         | 590.5                      | 89.5                                  | 42.1           | 1.000007                  |
| 87000.0                        | 21.7                  | -43.1                      |                      | 32.9                         | 590.9                      | 90.3                                  | 42.3           | 1.000007                  |
| 87500.0                        | 21.2                  | -42.7                      |                      | 32.1                         | 591.3                      | 91.5                                  | 42.5           | 1.000007                  |
| 88000.0                        | 20.8                  | -42.4                      |                      | 31.3                         | 591.8                      | 92.7                                  | 42.8           | 1.000007                  |
| 88500.0                        | 20.3                  | -42.1                      |                      | 30.6                         | 592.2                      | 93.1                                  | 43.0           | 1.000007                  |
| 89000.0                        | 19.8                  | -41.8                      |                      | 29.9                         | 592.6                      | 93.1                                  | 43.1           | 1.000007                  |
| 89500.0                        | 19.4                  | -41.3                      |                      | 29.2                         | 593.2                      | 93.1                                  | 43.2           | 1.000006                  |
| 90000.0                        | 19.0                  | -40.9                      |                      | 28.5                         | 593.7                      | 93.0                                  | 43.3           | 1.000006                  |
| 90500.0                        | 18.6                  | -40.5                      |                      | 27.8                         | 594.2                      | 92.6                                  | 43.2           | 1.000006                  |
| 91000.0                        | 18.2                  | -40.1                      |                      | 27.2                         | 594.8                      | 92.3                                  | 43.2           | 1.000006                  |
| 91500.0                        | 17.8                  | -39.7                      |                      | 26.5                         | 595.3                      | 92.0                                  | 43.2           | 1.000006                  |
| 92000.0                        | 17.4                  | -39.2                      |                      | 25.9                         | 595.8                      | 92.3                                  | 43.6           | 1.000006                  |
| 92500.0                        | 17.0                  | -38.8                      |                      | 25.3                         | 596.4                      | 92.6                                  | 44.0           | 1.000006                  |
| 93000.0                        | 16.6                  | -38.4                      |                      | 24.7                         | 596.9                      | 92.9                                  | 44.4           | 1.000005                  |
| 93500.0                        | 16.3                  | -38.0                      |                      | 24.1                         | 597.4                      | 93.8                                  | 42.1           | 1.000005                  |
| 94000.0                        | 15.9                  | -37.6                      |                      | 23.6                         | 598.0                      | 95.0                                  | 39.0           | 1.000005                  |
| 94500.0                        | 15.6                  | -37.1                      |                      | 23.0                         | 598.5                      | 96.5                                  | 36.0           | 1.000005                  |
| 95000.0                        | 15.2                  | -36.7                      |                      | 22.5                         | 599.0                      | 99.0                                  | 33.3           | 1.000005                  |
| 95500.0                        | 14.9                  | -36.3                      |                      | 21.9                         | 599.6                      | 103.0                                 | 31.1           | 1.000005                  |
| 96000.0                        | 14.6                  | -35.9                      |                      | 21.4                         | 600.0                      | 107.5                                 | 29.0           | 1.000005                  |
| 96500.0                        | 14.3                  | -35.5                      |                      | 21.0                         | 599.3                      | 112.0                                 | 27.6           | 1.000005                  |
| 97000.0                        | 14.0                  | -35.1                      |                      | 20.6                         | 598.6                      | 113.3                                 | 28.6           | 1.000005                  |
| 97500.0                        | 13.7                  | -34.7                      |                      | 20.2                         | 597.8                      | 114.5                                 | 29.7           | 1.000005                  |
| 98000.0                        | 13.4                  | -34.3                      |                      | 19.8                         | 597.1                      | 115.7                                 | 30.7           | 1.000004                  |
| 98500.0                        | 13.1                  | -33.8                      |                      | 19.4                         | 596.3                      | 117.0                                 | 31.8           | 1.000004                  |
| 99000.0                        | 12.8                  | -33.9                      |                      | 19.0                         | 596.3                      | 118.3                                 | 32.8           | 1.000004                  |
| 99500.0                        | 12.5                  | -33.8                      |                      | 18.6                         | 596.4                      | 119.5                                 | 33.9           | 1.000004                  |
| 100000.0                       | 12.2                  | -33.7                      |                      | 18.2                         | 596.6                      | 119.3                                 | 33.8           | 1.000004                  |
| 100500.0                       | 12.0                  | -33.5                      |                      | 17.8                         | 596.7                      | 117.7                                 | 32.7           | 1.000004                  |
| 101000.0                       | 11.7                  | -33.4                      |                      | 17.4                         | 596.9                      | 115.9                                 | 31.7           | 1.000004                  |
| 101500.0                       | 11.5                  | -33.3                      |                      | 17.0                         | 597.1                      |                                       |                | 1.000004                  |
| 102000.0                       | 11.2                  | -33.1                      |                      | 16.6                         | 597.2                      |                                       |                | 1.000004                  |
| 102500.0                       | 11.0                  | -33.0                      |                      | 16.3                         | 597.4                      |                                       |                | 1.000004                  |
| 103000.0                       | 10.7                  | -32.9                      |                      | 15.9                         | 597.6                      |                                       |                | 1.000004                  |

STATION ALTITUDE 3989.00 FEET MSL  
 24 JUNE 81 0915 HRS MDT  
 ASCENSION NO. 413

UPPER AIR DATA  
 1750020413  
 WHITE SANDS

GEODETIC COORDINATES  
 32.40043 LAT DEG  
 106.37033 LON DEG

TABLE 13 (Con't)

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREES | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA<br>DIRECTION<br>DEGREES(TN) | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|----------------------------|----------------------|---------------------------|----------------------------|---------------------------------------|---------------------------|
| 103500.0                       | 10.5                  | -37.8                      |                      |                           | 15.5                       | 597.7                                 | 1.000003                  |

STATION ALTITUDE 3989.00 FEET MSL  
24 JUNE 81 0915 HRS MDT  
ASCENSION NO. 413

MANDATORY LEVELS  
1750020413  
WHITE SANDS  
TABLE 14

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

| PRESSURE GEOPOTENTIAL |        | TEMPERATURE                  |                        | REL. HUM. | WIND DATA                |                |
|-----------------------|--------|------------------------------|------------------------|-----------|--------------------------|----------------|
| MILLIBARS             | FEET   | AIR<br>DEGREES<br>CENTIGRADE | DEWPOINT<br>CENTIGRADE | PERCENT   | DIRECTION<br>DEGREES(TN) | SPEED<br>KNOTS |
| 850.0                 | 4989.  | 25.5                         | 12.3                   | 44.       | 9999.0                   | 9999.0XX       |
| 800.0                 | 6731.  | 22.7                         | 9.6                    | 43.       | 9999.0                   | 9999.0XX       |
| 750.0                 | 8565.  | 19.1                         | 6.3                    | 43.       | 9999.0                   | 9999.0XX       |
| 700.0                 | 10498. | 14.9                         | 2.8                    | 44.       | 9999.0                   | 9999.0XX       |
| 650.0                 | 12541. | 10.1                         | .4                     | 51.       | 9999.0                   | 9999.0XX       |
| 600.0                 | 14706. | 4.5                          | -2.5                   | 60.       | 72.3                     | 12.6           |
| 550.0                 | 17009. | -1.4                         | -6.0                   | 71.       | 74.5                     | 16.0           |
| 500.0                 | 19475. | -7.8                         | -10.3                  | 82.       | 93.5                     | 13.4           |
| 450.0                 | 22140. | -13.3                        | -16.7                  | 76.       | 84.2                     | 8.9            |
| 400.0                 | 25068. | -17.2                        | -27.5                  | 40.       | 76.4                     | 12.1           |
| 350.0                 | 28305. | -24.8                        | -37.2                  | 30.       | 67.2                     | 11.3           |
| 300.0                 | 31928. | -33.3                        | -41.5                  | 43.       | 28.8                     | 10.8           |
| 250.0                 | 36040. | -44.0                        |                        |           | 8.9                      | 15.5           |
| 200.0                 | 40839. | -54.7                        |                        |           | 354.6                    | 19.2           |
| 175.0                 | 43604. | -60.6                        |                        |           | 16.0                     | 18.8           |
| 150.0                 | 46720. | -64.7                        |                        |           | 85.6                     | 26.0           |
| 125.0                 | 50325. | -68.6                        |                        |           | 101.6                    | 13.4           |
| 100.0                 | 54734. | -68.7                        |                        |           | 84.9                     | 11.0           |
| 80.0                  | 59124. | -62.1                        |                        |           | 93.3                     | 13.7           |
| 70.0                  | 61849. | -62.4                        |                        |           | 96.6                     | 13.2           |
| 60.0                  | 64960. | -61.6                        |                        |           | 94.0                     | 23.6           |
| 50.0                  | 68715. | -56.1                        |                        |           | 101.4                    | 22.3           |
| 40.0                  | 73378. | -55.3                        |                        |           | 93.9                     | 28.3           |
| 30.0                  | 79505. | -47.6                        |                        |           | 87.8                     | 35.2           |
| 25.0                  | 83479. | -45.0                        |                        |           | 91.7                     | 41.6           |
| 20.0                  | 88405. | -41.9                        |                        |           | 93.1                     | 43.0           |
| 15.0                  | 94873. | -36.4                        |                        |           | 101.4                    | 31.9           |

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

XX WIND DATA INVALID DUE TO MISSING RAW AZIMUTH AND ELEVATION ANGLES.

STATION ALTITUDE 4051.00 FEET MSL  
 24 JUNE 01 0915 HRS MDT  
 ASCENSION NO. 58

SIGNIFICANT LEVEL DATA  
 1750030050  
 JALLEN

GEODETIC COORDINATES  
 33.16712 LAT DEG  
 106.49511 LONG DEG

TABLE 15

| PRESSURE<br>MILLIBARS | GEOMETRIC<br>ALTITUDE<br>MSL FEET | TEMPERATURE<br>AIR DEWPOINT<br>DEGREES CENTIGRADE |       | REL. HUM.<br>PERCENT |
|-----------------------|-----------------------------------|---------------------------------------------------|-------|----------------------|
|                       |                                   | 27.9                                              | 12.3  |                      |
| 877.3                 | 4051.0                            | 27.5                                              | 8.9   | 38.0                 |
| 867.0                 | 4394.6                            | 25.9                                              | 8.4   | 31.0                 |
| 850.0                 | 4968.6                            | 24.0                                              | 5.8   | 33.0                 |
| 820.0                 | 6003.7                            | 20.5                                              | .9    | 31.0                 |
| 753.2                 | 8427.7                            | 15.1                                              | -1.0  | 27.0                 |
| 700.0                 | 10485.0                           | 7.0                                               | -12.2 | 33.0                 |
| 618.4                 | 13883.3                           | -4                                                | -5.6  | 24.0                 |
| 558.2                 | 16615.1                           | -2.7                                              | -6.5  | 68.0                 |
| 541.0                 | 17435.8                           | -6.4                                              | -12.3 | 75.0                 |
| 500.0                 | 19479.1                           | -7.3                                              | -15.4 | 63.0                 |
| 489.6                 | 20019.2                           | -12.0                                             | -18.8 | 52.0                 |
| 453.8                 | 21949.1                           | -18.2                                             | -25.4 | 57.0                 |
| 400.0                 | 25089.8                           | -19.6                                             | -29.4 | 53.0                 |
| 386.4                 | 25938.0                           | -30.0                                             | -45.6 | 41.0                 |
| 318.4                 | 30573.6                           | -33.7                                             | -43.0 | 20.0                 |
| 300.0                 | 31958.9                           | -36.1                                             | -42.9 | 38.0                 |
| 284.2                 | 33202.3                           | -40.0                                             | -49.0 | 49.0                 |
| 262.8                 | 34977.7                           | -42.5                                             |       | 37.0                 |
| 250.0                 | 36094.8                           | -51.2                                             |       |                      |
| 213.2                 | 39571.7                           | -54.6                                             |       |                      |
| 200.0                 | 40930.3                           | -61.2                                             |       |                      |
| 169.8                 | 44331.8                           | -63.8                                             |       |                      |
| 150.0                 | 46853.7                           | -69.1                                             |       |                      |
| 127.4                 | 50114.1                           | -67.6                                             |       |                      |
| 116.0                 | 51968.9                           | -67.5                                             |       |                      |
| 107.8                 | 53425.3                           | -69.4                                             |       |                      |
| 100.0                 | 54911.2                           | -68.0                                             |       |                      |
| 83.0                  | 58593.6                           | -61.0                                             |       |                      |
| 77.0                  | 60107.4                           | -61.0                                             |       |                      |
| 70.0                  | 62062.8                           | -58.6                                             |       |                      |
| 50.0                  | 69007.9                           | -51.2                                             |       |                      |
| 35.2                  | 76423.8                           | -49.5                                             |       |                      |
| 30.0                  | 79873.5                           | -44.5                                             |       |                      |
| 20.0                  | 88760.7                           | -38.2                                             |       |                      |
| 16.1                  | 93637.1                           | -37.6                                             |       |                      |
| 14.0                  | 96827.1                           |                                                   |       |                      |

STATION ALTITUDE 4051.00 FEET MSL  
24 JUNE 81 0915 HRS MDT  
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UPPER AIR DATA  
1750030050  
JALLEN

GEODETIC COORDINATES  
33.16712 LAT DEG  
106.49511 LON DEG

TABLE 16

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR DEGREES | TEMPERATURE<br>DEWPOINT<br>CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CURIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | DIRECTION<br>DEGREES (TN) | SPEED<br>KNOTS | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|----------------------------|---------------------------------------|----------------------|------------------------------|----------------------------|---------------------------|----------------|---------------------------|
| 4051.0                         | 877.5                 | 27.9                       | 12.3                                  | 38.0                 | 1000.9                       | 678.0                      | 0.0                       | 0.0            | 1.000285                  |
| 4500.0                         | 863.9                 | 27.2                       | 8.8                                   | 31.4                 | 997.0                        | 676.9                      | 219.3                     | 1.0            | 1.000270                  |
| 5000.0                         | 849.1                 | 25.8                       | 8.3                                   | 32.9                 | 984.4                        | 675.3                      | 219.3                     | 2.2            | 1.000266                  |
| 5500.0                         | 834.5                 | 24.9                       | 7.1                                   | 32.0                 | 970.8                        | 674.1                      | 219.3                     | 3.3            | 1.000259                  |
| 6000.0                         | 820.1                 | 24.0                       | 5.9                                   | 31.0                 | 957.3                        | 673.0                      | 230.9                     | 4.0            | 1.000253                  |
| 6500.0                         | 805.9                 | 23.3                       | 4.8                                   | 30.2                 | 943.2                        | 672.1                      | 250.3                     | 5.1            | 1.000247                  |
| 7000.0                         | 791.9                 | 22.6                       | 3.8                                   | 29.4                 | 929.3                        | 671.2                      | 279.7                     | 6.2            | 1.000242                  |
| 7500.0                         | 776.1                 | 21.8                       | 2.8                                   | 28.5                 | 915.6                        | 670.3                      | 291.4                     | 7.8            | 1.000237                  |
| 8000.0                         | 764.6                 | 21.1                       | 1.8                                   | 27.7                 | 902.0                        | 669.4                      | 291.3                     | 8.7            | 1.000231                  |
| 8500.0                         | 751.3                 | 20.3                       | 0.8                                   | 27.2                 | 888.9                        | 668.5                      | 287.5                     | 9.3            | 1.000227                  |
| 9000.0                         | 736.0                 | 19.0                       | 0.4                                   | 28.7                 | 877.2                        | 667.0                      | 279.2                     | 9.6            | 1.000223                  |
| 9500.0                         | 725.0                 | 17.7                       | -0.0                                  | 30.1                 | 865.6                        | 665.4                      | 276.3                     | 8.7            | 1.000220                  |
| 10000.0                        | 712.2                 | 16.4                       | -0.5                                  | 31.6                 | 854.3                        | 663.9                      | 277.3                     | 6.8            | 1.000217                  |
| 10500.0                        | 699.6                 | 15.1                       | -1.1                                  | 33.0                 | 843.1                        | 662.4                      | 291.2                     | 5.6            | 1.000214                  |
| 11000.0                        | 687.0                 | 13.9                       | -2.7                                  | 31.6                 | 831.5                        | 660.9                      | 313.7                     | 5.1            | 1.000208                  |
| 11500.0                        | 674.6                 | 12.7                       | -4.3                                  | 30.3                 | 820.1                        | 659.5                      | 339.4                     | 6.4            | 1.000203                  |
| 12000.0                        | 662.4                 | 11.5                       | -5.9                                  | 29.0                 | 808.8                        | 658.0                      | 350.6                     | 8.1            | 1.000199                  |
| 12500.0                        | 650.4                 | 10.3                       | -7.5                                  | 27.7                 | 797.6                        | 656.6                      | 14.4                      | 9.7            | 1.000194                  |
| 13000.0                        | 638.6                 | 9.1                        | -9.2                                  | 26.3                 | 786.8                        | 655.1                      | 25.7                      | 11.1           | 1.000190                  |
| 13500.0                        | 627.1                 | 7.9                        | -10.9                                 | 25.0                 | 776.0                        | 653.7                      | 33.7                      | 12.0           | 1.000186                  |
| 14000.0                        | 615.7                 | 6.7                        | -11.5                                 | 25.9                 | 765.3                        | 652.2                      | 42.3                      | 13.0           | 1.000183                  |
| 14500.0                        | 604.3                 | 5.3                        | -9.3                                  | 33.9                 | 754.5                        | 650.7                      | 50.6                      | 14.1           | 1.000183                  |
| 15000.0                        | 593.0                 | 4.0                        | -7.8                                  | 42.0                 | 743.9                        | 649.2                      | 58.2                      | 15.3           | 1.000183                  |
| 15500.0                        | 582.0                 | 2.6                        | -6.7                                  | 50.0                 | 733.5                        | 647.7                      | 64.4                      | 16.6           | 1.000182                  |
| 16000.0                        | 571.2                 | 1.3                        | -6.0                                  | 58.1                 | 723.3                        | 646.2                      | 64.4                      | 17.1           | 1.000181                  |
| 16500.0                        | 560.6                 | -0.1                       | -5.6                                  | 66.1                 | 713.3                        | 644.6                      | 64.9                      | 17.2           | 1.000179                  |
| 17000.0                        | 550.1                 | -1.5                       | -6.0                                  | 71.3                 | 703.5                        | 643.0                      | 60.8                      | 16.2           | 1.000177                  |
| 17500.0                        | 539.7                 | -2.8                       | -6.7                                  | 74.6                 | 693.6                        | 641.4                      | 69.9                      | 15.0           | 1.000174                  |
| 18000.0                        | 529.4                 | -3.7                       | -8.1                                  | 71.7                 | 682.5                        | 640.2                      | 75.1                      | 13.9           | 1.000169                  |
| 18500.0                        | 519.2                 | -4.6                       | -9.5                                  | 68.8                 | 672.2                        | 639.1                      | 78.8                      | 13.7           | 1.000165                  |
| 19000.0                        | 509.3                 | -5.5                       | -10.9                                 | 65.8                 | 661.7                        | 637.9                      | 80.2                      | 14.4           | 1.000161                  |
| 19500.0                        | 499.6                 | -6.4                       | -12.4                                 | 62.6                 | 651.4                        | 636.8                      | 81.3                      | 14.9           | 1.000158                  |
| 20000.0                        | 490.0                 | -7.3                       | -15.3                                 | 52.4                 | 641.0                        | 635.7                      | 82.2                      | 15.1           | 1.000153                  |
| 20500.0                        | 480.4                 | -8.5                       | -16.3                                 | 53.2                 | 631.5                        | 634.2                      | 81.6                      | 15.3           | 1.000150                  |
| 21000.0                        | 471.1                 | -9.7                       | -17.1                                 | 54.5                 | 622.1                        | 632.7                      | 79.3                      | 15.4           | 1.000147                  |
| 21500.0                        | 461.9                 | -10.9                      | -18.0                                 | 55.8                 | 612.6                        | 631.3                      | 75.3                      | 15.8           | 1.000145                  |
| 22000.0                        | 452.9                 | -12.1                      | -18.9                                 | 56.9                 | 603.7                        | 629.8                      | 68.9                      | 16.5           | 1.000142                  |
| 22500.0                        | 443.9                 | -13.1                      | -19.9                                 | 56.3                 | 593.4                        | 628.6                      | 62.2                      | 17.2           | 1.000139                  |
| 23000.0                        | 435.0                 | -14.1                      | -21.0                                 | 55.7                 | 584.4                        | 627.4                      | 54.7                      | 17.7           | 1.000137                  |
| 23500.0                        | 426.4                 | -15.1                      | -22.0                                 | 55.0                 | 575.0                        | 626.2                      | 49.5                      | 17.3           | 1.000134                  |

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GEODLTIC COORDINATES  
33.10712 LAT DEG  
106.40511 LON DEG

TABLE 16 (Con't)

| GEOMETRIC ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | AIR TEMPERATURE<br>DEGREES CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA<br>DIRECTION<br>DEGREES (IN) | WIND<br>SPEED<br>KNOTS | INDEX<br>OF<br>REFRACTION |
|--------------------------------|-----------------------|---------------------------------------|----------------------|------------------------------|----------------------------|----------------------------------------|------------------------|---------------------------|
| 24000.0                        | 417.9                 | -10.0                                 | 54.4                 | 565.8                        | 624.9                      | 45.6                                   | 15.9                   | 1.000131                  |
| 24500.0                        | 409.6                 | -17.0                                 | 53.8                 | 550.7                        | 623.7                      | 41.2                                   | 14.2                   | 1.000129                  |
| 25000.0                        | 401.4                 | -18.0                                 | 53.1                 | 547.8                        | 622.5                      | 34.7                                   | 11.9                   | 1.000127                  |
| 25500.0                        | 393.4                 | -18.9                                 | 47.2                 | 530.6                        | 621.4                      | 26.9                                   | 9.9                    | 1.000124                  |
| 26000.0                        | 385.4                 | -19.7                                 | 40.7                 | 529.5                        | 620.3                      | 21.8                                   | 8.3                    | 1.000121                  |
| 26500.0                        | 377.4                 | -20.9                                 | 38.5                 | 520.9                        | 619.9                      | 16.4                                   | 7.0                    | 1.000119                  |
| 27000.0                        | 369.6                 | -22.0                                 | 36.2                 | 512.5                        | 617.5                      | 21.0                                   | 5.9                    | 1.000116                  |
| 27500.0                        | 362.0                 | -23.1                                 | 33.9                 | 504.2                        | 616.1                      | 26.6                                   | 5.1                    | 1.000114                  |
| 28000.0                        | 354.5                 | -24.2                                 | 31.7                 | 496.0                        | 614.7                      | 42.3                                   | 6.7                    | 1.000112                  |
| 28500.0                        | 347.2                 | -25.3                                 | 29.4                 | 486.0                        | 613.3                      | 50.2                                   | 8.4                    | 1.000110                  |
| 29000.0                        | 340.0                 | -26.5                                 | 27.1                 | 480.1                        | 611.9                      | 54.4                                   | 9.9                    | 1.000108                  |
| 29500.0                        | 333.0                 | -27.6                                 | 24.9                 | 472.3                        | 610.5                      | 56.6                                   | 11.1                   | 1.000106                  |
| 30000.0                        | 326.1                 | -28.7                                 | 22.6                 | 464.7                        | 609.1                      | 54.9                                   | 10.8                   | 1.000104                  |
| 30500.0                        | 319.4                 | -29.8                                 | 20.3                 | 457.2                        | 607.7                      | 51.0                                   | 10.4                   | 1.000103                  |
| 31000.0                        | 312.6                 | -31.1                                 | 25.5                 | 449.9                        | 606.1                      | 35.2                                   | 10.0                   | 1.000101                  |
| 31500.0                        | 306.0                 | -32.5                                 | 32.0                 | 442.8                        | 604.4                      | 19.6                                   | 10.4                   | 1.000099                  |
| 32000.0                        | 299.5                 | -33.8                                 | 38.4                 | 435.7                        | 602.8                      | 4.0                                    | 12.3                   | 1.000098                  |
| 32500.0                        | 293.0                 | -34.7                                 | 42.8                 | 428.1                        | 601.6                      | 35.1                                   | 14.9                   | 1.000096                  |
| 33000.0                        | 286.7                 | -35.7                                 | 47.2                 | 420.6                        | 600.4                      | 349.1                                  | 15.7                   | 1.000095                  |
| 33500.0                        | 280.5                 | -36.8                                 | 47.0                 | 413.3                        | 599.0                      | 346.4                                  | 16.0                   | 1.000093                  |
| 34000.0                        | 274.4                 | -37.9                                 | 43.6                 | 406.2                        | 597.6                      | 340.3                                  | 15.6                   | 1.000091                  |
| 34500.0                        | 268.4                 | -39.0                                 | 40.2                 | 399.2                        | 596.2                      | 331.9                                  | 15.0                   | 1.000089                  |
| 35000.0                        | 262.5                 | -40.0                                 | 36.3**               | 392.3                        | 594.8                      | 322.0                                  | 15.1                   | 1.000088                  |
| 35500.0                        | 256.7                 | -41.2                                 | 19.7**               | 385.5                        | 593.4                      | 312.0                                  | 16.1                   | 1.000086                  |
| 36000.0                        | 251.1                 | -42.3                                 | 3.1**                | 378.8                        | 591.9                      | 306.2                                  | 16.9                   | 1.000084                  |
| 36500.0                        | 245.4                 | -43.5                                 |                      | 372.3                        | 590.4                      | 305.2                                  | 17.2                   | 1.000083                  |
| 37000.0                        | 239.8                 | -44.8                                 |                      | 365.9                        | 588.7                      | 306.0                                  | 17.4                   | 1.000081                  |
| 37500.0                        | 234.4                 | -46.0                                 |                      | 359.5                        | 587.1                      | 309.5                                  | 17.4                   | 1.000080                  |
| 38000.0                        | 229.1                 | -47.3                                 |                      | 353.3                        | 585.5                      | 311.5                                  | 17.6                   | 1.000079                  |
| 38500.0                        | 223.9                 | -48.5                                 |                      | 347.3                        | 583.9                      | 311.6                                  | 17.6                   | 1.000077                  |
| 39000.0                        | 218.9                 | -49.8                                 |                      | 341.3                        | 582.3                      | 311.4                                  | 17.6                   | 1.000076                  |
| 39500.0                        | 213.9                 | -51.0                                 |                      | 335.5                        | 580.8                      | 310.6                                  | 17.0                   | 1.000075                  |
| 40000.0                        | 208.9                 | -52.3                                 |                      | 329.5                        | 579.0                      | 314.1                                  | 15.6                   | 1.000073                  |
| 40500.0                        | 204.1                 | -53.5                                 |                      | 323.7                        | 577.3                      | 321.8                                  | 13.8                   | 1.000072                  |
| 41000.0                        | 199.3                 | -54.7                                 |                      | 317.9                        | 575.8                      | 335.1                                  | 11.6                   | 1.000071                  |
| 41500.0                        | 194.6                 | -55.7                                 |                      | 311.8                        | 574.5                      | 350.4                                  | 9.6                    | 1.000069                  |
| 42000.0                        | 190.0                 | -56.7                                 |                      | 305.7                        | 573.2                      | 8.0                                    | 8.6                    | 1.000068                  |
| 42500.0                        | 185.4                 | -57.6                                 |                      | 299.8                        | 571.9                      | 26.9                                   | 8.3                    | 1.000067                  |
| 43000.0                        | 181.0                 | -58.6                                 |                      | 294.0                        | 570.6                      | 28.4                                   | 8.6                    | 1.000065                  |
| 43500.0                        | 176.7                 | -59.6                                 |                      | 288.3                        | 569.3                      | 28.2                                   | 8.8                    | 1.000064                  |

\*\* AT LAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4051.00 FEET MSL  
24 JUNE 61 0915 HRS MDT  
ASCENSION, NO. 58

UPPER AIR DATA  
1750030050  
JALLEN

GEODETIC COORDINATES  
33.16712 LAT (DEG)  
106.49511 LONG (DEG)

TABLE 16 (Con't)

| GEOMETRIC<br>ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR<br>DEGREES<br>CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CURIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA                 |                | INDEX<br>OF<br>REFRACTION |
|-----------------------------------|-----------------------|---------------------------------------------|----------------------|------------------------------|----------------------------|---------------------------|----------------|---------------------------|
|                                   |                       |                                             |                      |                              |                            | DIRECTION<br>DEGREES (TN) | SPEED<br>KNOTS |                           |
| 44000.0                           | 172.5                 | -60.6                                       |                      | 282.7                        | 568.0                      | 35.0                      | 9.4            | 1.000003                  |
| 44500.0                           | 168.4                 | -61.4                                       |                      | 277.0                        | 566.9                      | 42.2                      | 10.2           | 1.000062                  |
| 45000.0                           | 164.3                 | -61.9                                       |                      | 270.9                        | 566.2                      | 57.3                      | 12.2           | 1.000060                  |
| 45500.0                           | 160.3                 | -62.4                                       |                      | 265.0                        | 565.6                      | 70.1                      | 15.4           | 1.000059                  |
| 46000.0                           | 156.4                 | -62.9                                       |                      | 259.2                        | 564.9                      | 82.6                      | 19.0           | 1.000058                  |
| 46500.0                           | 152.6                 | -63.4                                       |                      | 253.5                        | 564.2                      | 94.2                      | 23.2           | 1.000056                  |
| 47000.0                           | 148.9                 | -64.0                                       |                      | 248.1                        | 563.4                      | 102.1                     | 28.1           | 1.000055                  |
| 47500.0                           | 145.2                 | -64.9                                       |                      | 242.9                        | 562.3                      | 108.9                     | 29.3           | 1.000054                  |
| 48000.0                           | 141.6                 | -65.7                                       |                      | 237.8                        | 561.2                      | 115.1                     | 30.9           | 1.000053                  |
| 48500.0                           | 138.1                 | -66.5                                       |                      | 232.8                        | 560.1                      | 118.0                     | 28.8           | 1.000052                  |
| 49000.0                           | 134.7                 | -67.3                                       |                      | 228.0                        | 559.0                      | 118.1                     | 22.8           | 1.000051                  |
| 49500.0                           | 131.4                 | -68.1                                       |                      | 223.2                        | 557.9                      | 116.5                     | 17.0           | 1.000050                  |
| 50000.0                           | 128.1                 | -68.9                                       |                      | 218.6                        | 556.8                      | 104.5                     | 12.3           | 1.000049                  |
| 50500.0                           | 124.9                 | -68.8                                       |                      | 213.0                        | 556.9                      | 80.3                      | 8.6            | 1.000047                  |
| 51000.0                           | 121.8                 | -68.4                                       |                      | 207.3                        | 557.5                      | 68.9                      | 10.1           | 1.000046                  |
| 51500.0                           | 118.8                 | -68.0                                       |                      | 201.7                        | 558.0                      | 61.2                      | 12.0           | 1.000045                  |
| 52000.0                           | 115.8                 | -67.6                                       |                      | 196.3                        | 558.5                      | 59.1                      | 13.3           | 1.000044                  |
| 52500.0                           | 112.9                 | -67.6                                       |                      | 191.4                        | 558.6                      | 58.9                      | 14.5           | 1.000043                  |
| 53000.0                           | 110.1                 | -67.5                                       |                      | 186.6                        | 558.6                      | 58.4                      | 15.5           | 1.000042                  |
| 53500.0                           | 107.4                 | -67.6                                       |                      | 182.0                        | 558.5                      | 57.7                      | 16.4           | 1.000041                  |
| 54000.0                           | 104.7                 | -68.2                                       |                      | 178.0                        | 557.7                      | 57.0                      | 17.2           | 1.000040                  |
| 54500.0                           | 102.1                 | -68.9                                       |                      | 174.1                        | 556.8                      | 54.6                      | 17.8           | 1.000039                  |
| 55000.0                           | 99.6                  | -69.4                                       |                      | 170.2                        | 556.1                      | 71.9                      | 18.6           | 1.000038                  |
| 55500.0                           | 97.1                  | -69.2                                       |                      | 165.8                        | 556.4                      | 79.8                      | 18.2           | 1.000037                  |
| 56000.0                           | 94.6                  | -69.0                                       |                      | 161.5                        | 556.7                      | 89.6                      | 17.1           | 1.000036                  |
| 56500.0                           | 92.3                  | -68.8                                       |                      | 157.3                        | 556.9                      | 98.6                      | 16.5           | 1.000035                  |
| 57000.0                           | 90.0                  | -68.6                                       |                      | 153.2                        | 557.2                      | 97.0                      | 15.1           | 1.000034                  |
| 57500.0                           | 87.7                  | -68.4                                       |                      | 149.3                        | 557.4                      | 95.0                      | 13.7           | 1.000033                  |
| 58000.0                           | 85.5                  | -68.2                                       |                      | 145.4                        | 557.7                      | 90.8                      | 13.1           | 1.000032                  |
| 58500.0                           | 83.4                  | -68.0                                       |                      | 141.6                        | 557.9                      | 85.5                      | 12.9           | 1.000032                  |
| 59000.0                           | 81.3                  | -68.1                                       |                      | 138.9                        | 560.5                      | 82.2                      | 12.6           | 1.000030                  |
| 59500.0                           | 79.4                  | -68.3                                       |                      | 132.1                        | 563.7                      | 82.2                      | 12.1           | 1.000029                  |
| 60000.0                           | 77.4                  | -61.5                                       |                      | 127.4                        | 566.8                      | 82.6                      | 11.7           | 1.000028                  |
| 60500.0                           | 75.5                  | -61.0                                       |                      | 124.0                        | 567.4                      | 87.6                      | 12.7           | 1.000028                  |
| 61000.0                           | 73.7                  | -61.0                                       |                      | 121.1                        | 567.4                      | 92.0                      | 13.7           | 1.000027                  |
| 61500.0                           | 71.9                  | -61.0                                       |                      | 118.1                        | 567.4                      | 92.2                      | 14.8           | 1.000026                  |
| 62000.0                           | 70.2                  | -61.0                                       |                      | 115.3                        | 567.4                      | 91.3                      | 15.9           | 1.000026                  |
| 62500.0                           | 68.5                  | -60.8                                       |                      | 112.5                        | 567.6                      | 91.0                      | 17.2           | 1.000025                  |
| 63000.0                           | 66.9                  | -60.7                                       |                      | 109.7                        | 567.9                      | 92.7                      | 19.4           | 1.000024                  |
| 63500.0                           | 65.3                  | -60.5                                       |                      | 107.0                        | 568.1                      | 94.1                      | 21.6           | 1.000024                  |

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GEODETTIC COORDINATES  
33.16712 LAT DEG  
106.49511 LONG DEG

TABLE 16 (Con't)

| GEOMETRIC<br>ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE<br>AIR<br>DEGREES CENTIGRADE | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA                 |                | INDEX<br>OF<br>REFRACTION |
|-----------------------------------|-----------------------|------------------------------------------|----------------------|------------------------------|----------------------------|---------------------------|----------------|---------------------------|
|                                   |                       |                                          |                      |                              |                            | DIRECTION<br>DEGREES (TN) | SPEED<br>KNOTS |                           |
| 64000.0                           | 65.7                  | -60.3                                    |                      | 104.3                        | 508.3                      | 96.5                      | 23.6           | 1.000023                  |
| 64500.0                           | 62.2                  | -60.2                                    |                      | 101.7                        | 508.6                      | 100.4                     | 25.3           | 1.000023                  |
| 65000.0                           | 60.7                  | -60.0                                    |                      | 99.2                         | 508.0                      | 103.7                     | 27.2           | 1.000022                  |
| 65500.0                           | 59.3                  | -59.8                                    |                      | 96.8                         | 509.0                      | 106.0                     | 27.4           | 1.000022                  |
| 66000.0                           | 57.8                  | -59.6                                    |                      | 94.4                         | 509.3                      | 107.8                     | 26.7           | 1.000021                  |
| 66500.0                           | 56.5                  | -59.5                                    |                      | 92.0                         | 509.5                      | 109.7                     | 26.1           | 1.000020                  |
| 67000.0                           | 55.1                  | -59.3                                    |                      | 89.6                         | 509.7                      | 110.8                     | 25.8           | 1.000020                  |
| 67500.0                           | 53.8                  | -59.1                                    |                      | 87.6                         | 509.9                      | 111.8                     | 25.4           | 1.000019                  |
| 68000.0                           | 52.5                  | -58.9                                    |                      | 85.4                         | 510.2                      | 112.1                     | 25.0           | 1.000019                  |
| 68500.0                           | 51.2                  | -58.8                                    |                      | 83.3                         | 510.4                      | 107.9                     | 24.1           | 1.000019                  |
| 69000.0                           | 50.0                  | -58.6                                    |                      | 81.2                         | 510.6                      | 103.4                     | 23.4           | 1.000018                  |
| 69500.0                           | 48.8                  | -58.1                                    |                      | 79.1                         | 511.3                      | 98.6                      | 22.5           | 1.000018                  |
| 70000.0                           | 47.7                  | -57.6                                    |                      | 77.1                         | 512.0                      | 93.4                      | 21.4           | 1.000017                  |
| 70500.0                           | 46.6                  | -57.1                                    |                      | 75.1                         | 512.6                      | 87.6                      | 20.4           | 1.000017                  |
| 71000.0                           | 45.5                  | -56.6                                    |                      | 73.2                         | 513.3                      | 85.3                      | 20.3           | 1.000016                  |
| 71500.0                           | 44.4                  | -56.1                                    |                      | 71.3                         | 513.9                      | 85.3                      | 20.5           | 1.000016                  |
| 72000.0                           | 43.4                  | -55.6                                    |                      | 69.5                         | 514.6                      | 85.2                      | 20.7           | 1.000015                  |
| 72500.0                           | 42.4                  | -55.1                                    |                      | 67.7                         | 515.3                      | 86.3                      | 21.9           | 1.000015                  |
| 73000.0                           | 41.4                  | -54.6                                    |                      | 66.0                         | 515.9                      | 87.5                      | 23.5           | 1.000015                  |
| 73500.0                           | 40.4                  | -54.1                                    |                      | 64.3                         | 516.6                      | 88.6                      | 25.0           | 1.000014                  |
| 74000.0                           | 39.5                  | -53.6                                    |                      | 62.6                         | 517.2                      | 89.7                      | 25.8           | 1.000014                  |
| 74500.0                           | 38.6                  | -53.1                                    |                      | 61.0                         | 517.9                      | 90.7                      | 26.4           | 1.000014                  |
| 75000.0                           | 37.7                  | -52.6                                    |                      | 59.5                         | 518.5                      | 91.7                      | 27.1           | 1.000013                  |
| 75500.0                           | 36.8                  | -52.1                                    |                      | 58.0                         | 519.2                      | 91.5                      | 27.8           | 1.000013                  |
| 76000.0                           | 35.9                  | -51.6                                    |                      | 56.5                         | 519.8                      | 91.3                      | 28.4           | 1.000013                  |
| 76500.0                           | 35.1                  | -51.2                                    |                      | 55.0                         | 520.4                      | 91.1                      | 29.1           | 1.000012                  |
| 77000.0                           | 34.3                  | -50.9                                    |                      | 53.7                         | 520.8                      | 90.4                      | 30.1           | 1.000012                  |
| 77500.0                           | 33.5                  | -50.7                                    |                      | 52.4                         | 521.1                      | 89.7                      | 31.1           | 1.000012                  |
| 78000.0                           | 32.7                  | -50.4                                    |                      | 51.2                         | 521.4                      | 89.2                      | 32.1           | 1.000011                  |
| 78500.0                           | 32.0                  | -50.2                                    |                      | 50.0                         | 521.7                      | 89.0                      | 33.2           | 1.000011                  |
| 79000.0                           | 31.2                  | -49.9                                    |                      | 48.8                         | 522.1                      | 88.9                      | 34.3           | 1.000011                  |
| 79500.0                           | 30.5                  | -49.7                                    |                      | 47.6                         | 522.4                      | 88.7                      | 35.4           | 1.000011                  |
| 80000.0                           | 29.8                  | -49.4                                    |                      | 46.4                         | 522.7                      | 88.8                      | 36.2           | 1.000010                  |
| 80500.0                           | 29.2                  | -49.1                                    |                      | 45.3                         | 523.1                      | 88.8                      | 37.1           | 1.000010                  |
| 81000.0                           | 28.5                  | -48.9                                    |                      | 44.3                         | 523.4                      | 88.9                      | 37.9           | 1.000010                  |
| 81500.0                           | 27.9                  | -48.6                                    |                      | 43.2                         | 523.8                      | 88.9                      | 38.5           | 1.000010                  |
| 82000.0                           | 27.2                  | -48.3                                    |                      | 42.2                         | 524.2                      | 88.9                      | 39.0           | 1.000009                  |
| 82500.0                           | 26.6                  | -48.0                                    |                      | 41.2                         | 524.5                      | 89.0                      | 39.6           | 1.000009                  |
| 83000.0                           | 26.0                  | -47.7                                    |                      | 40.2                         | 524.9                      | 89.4                      | 40.1           | 1.000009                  |
| 83500.0                           | 25.4                  | -47.5                                    |                      | 39.2                         | 525.3                      | 90.1                      | 40.7           | 1.000009                  |

STATION ALTITUDE 4051.00 FEET MSL  
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UPPER AIR DATA  
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GEODETTIC COORDINATES  
33.16712 LAT DEG  
106.49511 LONG DEG

TABLE 16 (Con't)

| GEODETTIC<br>ALTITUDE<br>MSL FEET | PRESSURE<br>MILLIBARS | TEMPERATURE    |                        | REL. HUM.<br>PERCENT | DENSITY<br>GM/CUBIC<br>METER | SPEED OF<br>SOUND<br>KNOTS | WIND DATA                 |                | INDEX<br>OF<br>REFRACTION |
|-----------------------------------|-----------------------|----------------|------------------------|----------------------|------------------------------|----------------------------|---------------------------|----------------|---------------------------|
|                                   |                       | AIR<br>DEGREES | DEWPOINT<br>CENTIGRADE |                      |                              |                            | DIRECTION<br>DEGREES (TN) | SPEED<br>KNOTS |                           |
| 4000.0                            | 24.9                  | -47.2          |                        |                      | 30.3                         | 585.6                      | 90.0                      | 41.3           | 1.000009                  |
| 4450.0                            | 24.3                  | -46.9          |                        |                      | 37.4                         | 580.0                      | 91.1                      | 41.8           | 1.000008                  |
| 4500.0                            | 23.7                  | -46.6          |                        |                      | 30.5                         | 586.4                      | 90.9                      | 42.1           | 1.000008                  |
| 4550.0                            | 23.2                  | -46.3          |                        |                      | 35.0                         | 586.7                      | 90.8                      | 42.4           | 1.000008                  |
| 4600.0                            | 22.7                  | -46.1          |                        |                      | 34.0                         | 587.1                      | 90.1                      | 42.6           | 1.000008                  |
| 4650.0                            | 22.2                  | -45.8          |                        |                      | 34.0                         | 587.4                      | 88.1                      | 42.6           | 1.000008                  |
| 4700.0                            | 21.7                  | -45.5          |                        |                      | 33.2                         | 587.8                      | 86.0                      | 42.6           | 1.000007                  |
| 4750.0                            | 21.2                  | -45.2          |                        |                      | 32.4                         | 588.2                      | 84.1                      | 42.6           | 1.000007                  |
| 4800.0                            | 20.7                  | -44.9          |                        |                      | 31.6                         | 588.5                      | 85.2                      | 42.9           | 1.000007                  |
| 4850.0                            | 20.2                  | -44.6          |                        |                      | 30.9                         | 588.9                      | 86.2                      | 43.2           | 1.000007                  |
| 4900.0                            | 19.8                  | -44.2          |                        |                      | 30.1                         | 589.5                      | 87.2                      | 43.6           | 1.000007                  |
| 4950.0                            | 19.4                  | -43.5          |                        |                      | 29.4                         | 590.3                      | 89.1                      | 44.4           | 1.000007                  |
| 5000.0                            | 18.9                  | -42.9          |                        |                      | 28.6                         | 591.1                      | 90.9                      | 45.3           | 1.000006                  |
| 5050.0                            | 18.5                  | -42.3          |                        |                      | 27.9                         | 592.0                      | 92.7                      | 46.3           | 1.000006                  |
| 5100.0                            | 18.1                  | -41.6          |                        |                      | 27.2                         | 592.8                      | 93.8                      | 46.6           | 1.000006                  |
| 5150.0                            | 17.7                  | -41.0          |                        |                      | 26.6                         | 593.6                      | 94.8                      | 46.7           | 1.000006                  |
| 5200.0                            | 17.3                  | -40.3          |                        |                      | 25.9                         | 594.5                      | 95.7                      | 46.9           | 1.000006                  |
| 5250.0                            | 16.9                  | -39.7          |                        |                      | 25.3                         | 595.3                      | 96.5                      | 45.6           | 1.000006                  |
| 5300.0                            | 16.6                  | -39.0          |                        |                      | 24.0                         | 596.1                      | 97.3                      | 43.6           | 1.000005                  |
| 5350.0                            | 16.2                  | -38.4          |                        |                      | 24.0                         | 596.9                      | 98.1                      | 41.6           | 1.000005                  |
| 5400.0                            | 15.8                  | -38.1          |                        |                      | 23.5                         | 597.2                      | 98.1                      | 39.8           | 1.000005                  |
| 5450.0                            | 15.5                  | -38.0          |                        |                      | 23.0                         | 597.4                      | 97.4                      | 37.9           | 1.000005                  |
| 5500.0                            | 15.2                  | -37.9          |                        |                      | 22.5                         | 597.5                      | 96.0                      | 36.1           | 1.000005                  |
| 5550.0                            | 14.8                  | -37.8          |                        |                      | 22.0                         | 597.6                      |                           |                | 1.000005                  |
| 5600.0                            | 14.5                  | -37.8          |                        |                      | 21.5                         | 597.7                      |                           |                | 1.000005                  |
| 5650.0                            | 14.2                  | -37.7          |                        |                      | 21.0                         | 597.8                      |                           |                | 1.000005                  |

STATION ALTITUDE 4051.00 FEET MSL  
24 JUNE 81  
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MANDATORY LEVELS  
1750030050  
JALLEN

GEODETIC COORDINATES  
33.16712 LAT LEG  
106.49511 LONG DEG

TABLE 17

| PRESSURE EQUIPOTENTIAL |        | TEMPERATURE                  |                        | REL. HUM. |                          | WIND DATA      |  |
|------------------------|--------|------------------------------|------------------------|-----------|--------------------------|----------------|--|
| MILLIBARS              | FEET   | AIR<br>DEGREES<br>CENTIGRADE | DEWPOINT<br>CENTIGRADE | PERCENT   | DIRECTION<br>DEGREES(TN) | SPEED<br>KNOTS |  |
| 850.0                  | 4965.  | 25.9                         | 8.4                    | 33.       | 219.3                    | 2.1            |  |
| 800.0                  | 6706.  | 23.0                         | 4.4                    | 30.       | 267.0                    | 5.4            |  |
| 750.0                  | 8541.  | 20.2                         | .8                     | 27.       | 286.7                    | 9.3            |  |
| 700.0                  | 10475. | 15.1                         | -1.0                   | 33.       | 290.5                    | 5.6            |  |
| 650.0                  | 12516. | 10.3                         | -7.6                   | 20.       | 15.1                     | 9.8            |  |
| 600.0                  | 14680. | 4.8                          | -8.6                   | 37.       | 53.5                     | 14.6           |  |
| 550.0                  | 16983. | -1.5                         | -6.0                   | 71.       | 66.7                     | 10.2           |  |
| 500.0                  | 19453. | -6.4                         | -12.3                  | 63.       | 81.3                     | 14.9           |  |
| 450.0                  | 22128. | -12.4                        | -19.2                  | 57.       | 67.1                     | 10.8           |  |
| 400.0                  | 25049. | -18.2                        | -25.4                  | 53.       | 33.5                     | 11.5           |  |
| 350.0                  | 28281. | -24.9                        | -37.3                  | 30.       | 47.9                     | 7.8            |  |
| 300.0                  | 31896. | -33.7                        | -43.0                  | 38.       | 5.5                      | 12.1           |  |
| 250.0                  | 36017. | -42.5                        |                        |           | 306.1                    | 17.0           |  |
| 200.0                  | 40832. | -54.6                        |                        |           | 330.7                    | 12.0           |  |
| 175.0                  | 43602. | -60.0                        |                        |           | 30.0                     | 9.0            |  |
| 150.0                  | 46728. | -63.8                        |                        |           | 99.8                     | 20.4           |  |
| 125.0                  | 50345. | -68.8                        |                        |           | 82.5                     | 8.8            |  |
| 100.0                  | 54743. | -60.4                        |                        |           | 70.3                     | 18.4           |  |
| 80.0                   | 59136. | -64.6                        |                        |           | 82.2                     | 12.3           |  |
| 70.0                   | 61852. | -61.0                        |                        |           | 91.3                     | 16.0           |  |
| 60.0                   | 65003. | -59.9                        |                        |           | 104.9                    | 27.8           |  |
| 50.0                   | 68750. | -58.6                        |                        |           | 103.6                    | 23.4           |  |
| 40.0                   | 73402. | -53.9                        |                        |           | 89.0                     | 25.3           |  |
| 30.0                   | 79534. | -49.5                        |                        |           | 88.8                     | 30.0           |  |
| 25.0                   | 83472. | -47.3                        |                        |           | 90.5                     | 41.1           |  |
| 20.0                   | 88346. | -44.5                        |                        |           | 86.7                     | 43.4           |  |
| 15.0                   | 94777. | -37.9                        |                        |           | 96.3                     | 35.4           |  |

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

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