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DR-358  
October 1968

AD

METEOROLOGICAL DATA REPORT

NIKE-HYDAC STV, SR-073  
(5 September 1968)

BY

GORDON L. DUNAWAY

ATMOSPHERIC SCIENCE RESEARCH OFFICE  
WHITE SANDS MISSILE RANGE, NEW MEXICO

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UNITED STATES ARMY ELECTRONICS COMMAND

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METEOROLOGICAL DATA REPORT

NIKE-HYDAC STV, SR-973  
(5 September 1968)

By

Gordon L. Dunaway

DR-358

October 1968

DA Task 1T665702D127-02

ATMOSPHERIC SCIENCE RESEARCH OFFICE  
WHITE SANDS MISSILE RANGE, NEW MEXICO

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ABSTRACT

Meteorological data gathered for the launching of Nike-Hydac STV, SR-073, are presented for the Space and Missile Systems Organization and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.

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## INTRODUCTION

Nike-Hydrac STV, SR-073, was launched from LC-33, L-314, White Sands Missile Range (WSMR), New Mexico, at 0600 hours MDT, 5 September 1968.

Meteorological data used in conjunction with theoretical calculations to predict rocket impact were collected by the Meteorological Support Technical Area, U. S. Army Electronics Research and Development Activity, WSMR, New Mexico. The Ballistics Meteorologists for this firing were Gordon L. Dunaway and Dennis E. Hulse.

## DISCUSSION

Wind data for the first 216 feet above the surface were obtained from a system composed of five Aerovanes mounted on a 200-foot tower and cabled to two component wind indicators for each level.

From 216 to 4,000 feet above the surface, wind data were obtained from T-9 radar tracked balloon ascents.

Temperature, pressure, and humidity data, along with upper wind data from 4,000 to 100,000 feet above the surface, were obtained from standard rawinsonde observations.

Mean wind component values in each ballistic zone were determined from vertical cross sections by the equal-area method.

Theoretical rocket performance values and wind-weighting values as a function of altitude were provided by the Meteorological Support Technical Area, WSMR, New Mexico, and are the basis for the data appearing in Table I.

PAYLOAD		218	Pounds
CORIOIIS DISPLACEMENT	WEST	4.9	Miles
SECOND-STAGE IGNITION	TIME	20.0	Seconds
	ALTITUDE	35,760	Feet MSL
PEAK	TIME	236	Seconds
	ALTITUDE	716,000	Feet MSL
UNIT WIND EFFECT	HEAD	2.51	Miles/MPH
	CROSS	2.60	Miles/MPH
	TAIL	2.52	Miles/MPH
TOWER TILT EFFECT		14.53	Miles/Degree

TABLE I. THEORETICAL ROCKET PERFORMANCE VALUES  
NIKE-HYDAC STV, SR-073

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS	LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS	LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
15- 60	.126	1000- 1400	.063	21000-26000	-.013
60- 108	.084	1400- 2000	.066	26000-31770	-.016
108- 418	.053	2000- 2500	.025	31770-36000	.129
148- 184	.041	2500- 3000	.028	36000-41000	.057
184- 216	.026	3000- 3500	.014	41000-46000	.026
216- 300	.062	3500- 4000	.005	46000-51000	.015
300- 400	.059	4000- 4160	-.003	51000-56000	.010
400- 600	.072	4160- 9000	-.014	56000-61000	.006
600- 800	.058	9000-15000	-.017	61000-66000	.004
800-1000	.039	15000-21000	-.016	66000-69330	.002

TABLE II. BALLISTIC FACTORS  
NIKE-HYDAC STV, SR-073

AERO-VANE NO. *	MEAN WIND COMPONENTS IN MILES PER HOUR											
	1 0400 MDT		2 0430 MDT		3 0500 MDT		4 0515 MDT		5 0530 MDT			
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W		
1	7.0S	8.0E	5.0S	5.0E	1.0S	3.0E	0.0	4.0W	0.0	0.0	3.0W	
2	10.0	10.0	5.0	6.0	1.0	4.0	0.0	5.0	0.0	0.0	4.0	
3	6.0	15.0	5.0	11.0	2.0	3.0	1.0S	4.0	0.0	0.0	3.0	
4	10.0	12.0	10.0	10.0	1.0	2.0	1.0	3.0	0.0	0.0	2.0	
5	11.0	12.0	8.0	9.0	2.0	2.0	1.0	4.0	0.0	0.0	2.5	

  

AERO-VANE NO. *	MEAN WIND COMPONENTS IN MILES PER HOUR											
	6 0540 MDT		7 0550 MDT		8 0600 MDT							
	N-S	E-W	N-S	E-W	N-S	E-W						
1	0.0	3.0W	0.0	2.0W	0.0	0.0						
2	0.0	4.0	0.0	3.0	0.0	2.0W						
3	0.0	3.0	0.0	3.0	2.0S	2.0						
4	0.0	3.0	0.0	2.0	3.0	2.0						
5	0.0	3.0	0.0	2.0	2.0	2.0						

TABLE III. ANEMOMETER WIND SPEED AND DIRECTION  
NIKE-HYDAC STV, SR-073

\* Heights corresponding to Aerovane Numbers: 1 = 35 Feet 3 = 128 Feet 5 = 200 Feet  
2 = 88 Feet 4 = 168 Feet

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN MILES PER HOUR									
	1 0400 MDT		2 0430 MDT		3 0500 MDT		4 0515 MDT		5 0530 MDT	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
216-300	11.5S	12.5E	8.0S	9.0E	2.0S	4.0E	1.0S	3.0W	0.5S	2.5W
300-400	12.5	14.0	9.5	9.5	5.0	4.5	3.0	1.0	2.0	2.0
400-600	13.5	14.5	12.5	10.5	8.0	6.0	5.0	0.5E	2.0	1.5
600-800	10.0	14.0	13.0	13.5	11.0	11.5	7.0	2.5	4.5	2.0E
800-1000	8.0	8.0	14.0	10.5	9.0	8.0	10.0	9.0	5.0	8.0
1000-1400	8.0	2.0	5.0	5.0	8.0	1.5	7.5	8.5	8.0	9.5
1400-2000	10.5	4.0W	8.0	0.0	10.0	1.5W	9.0	4.0	6.5	4.0
2000-2500	14.0	2.0E	12.0	0.5W	15.0	1.0E	16.0	1.0W	10.5	2.0W
2500-3000	19.5	5.0	22.5	1.0E	17.0	1.5W	22.5	1.0E	16.0	0.0
3000-3500	27.0	5.0	24.0	0.0	20.0	2.0	17.0	2.5W	21.0	3.5W
3500-4000	24.0	0.0	16.5	2.0W	24.0	2.5	12.5	3.5	13.5	3.0

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA  
NIKE-HYDAC STV, SR-073

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN MILES PER HOUR											
	6		7		8		6		7		8	
	0540 MDT		0550 MDT		0600 MDT		0600 MDT		0600 MDT		0600 MDT	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
216-300	0.0	1.5W	1.0S	0.5W	2.0S	1.0W	2.0S	0.5W	1.0S	2.0S	1.0W	
300-400	0.5N	0.0	1.5	0.5E	3.5	0.5	3.5	0.5E	3.5	3.5	0.5	
400-600	3.0S	0.5W	3.0	1.0	2.0	1.0E	2.0	1.0	2.0	2.0	1.0E	
600-800	2.0	0.0	1.5	2.5	4.5	4.5	4.5	2.5	4.5	4.5	4.5	
800-1000	0.0	3.5E	3.5	6.5	5.0	7.5	5.0	6.5	5.0	5.0	7.5	
1000-1400	6.0S	11.0	7.0	10.5	8.0	12.0	8.0	10.5	8.0	8.0	12.0	
1400-2000	7.0	6.0	6.0	6.0	9.5	10.5	9.5	6.0	6.0	9.5	10.5	
2000-2500	13.0	1.0W	9.0	0.5W	7.0	2.5	7.0	0.5W	7.0	7.0	2.5	
2500-3000	13.0	0.5	15.0	0.5E	12.0	0.5	12.0	0.5E	12.0	12.0	0.5	
3000-3500	20.0	5.0	21.0	3.0W	20.0	1.5W	20.0	3.0W	20.0	20.0	1.5W	
3500-4000	10.0	7.0	14.5	5.0	16.0	5.5	16.0	5.0	16.0	16.0	5.5	

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA (CONT)  
NIKE-HYDAC STV, BR-073

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN KNOTS					
	1 0300 MDT		2 0530 MDT			
	N-S	E-W	N-S	E-W	N-S	E-W
4000-4160	13.0S	5.0W	8.0S	4.5W		
4160-9000	4.5	8.0	0.0	7.0		
9000-15000	9.0N	1.5	4.5N	4.0		
15000-21000	10.5	12.5	9.5	11.5		
21000-26000	10.5	18.5	13.5	16.0		
26000-31770	16.0	28.0	5.0	27.5		
31770-36000	3.0	34.0	3.0S	32.5		
36000-41000	0.0	40.0	6.5	35.5		
41000-46000	5.0S	27.5	0.0	27.0		
46000-51000	3.0	15.5	3.0N	18.0		
51000-56000	0.0	10.0	2.5S	13.0		
56000-61000	1.5S	10.0	6.0	0.0		
61000-66000	3.0N	5.0	6.5N	11.5E		
66000-69330	10.5	12.0E	3.0	18.0		

TABLE V. RAWINSONDE-MEASURED WIND DATA  
NIKE-HYDAC STV, SR-073

STATION ALTITUDE 3989.0 FEET MSL  
 5 SEPT. 68  
 ASCENSION NO. 722

SIGNIFICANT LEVEL DATA  
 0312003907  
 WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL  
 5 SEPT. 68  
 ASCENSION NO. 722

TABLE VI

STATION ALTITUDE FEET MSL	PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	DEWPOINT TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT
881.5	881.5	3989.0	20.0	13.6	66.0
872.0	872.0	4296.5	20.3	11.3	56.0
798.0	798.0	6794.4	16.0	8.1	59.0
753.0	753.0	8413.3	15.0	3.5	46.0
655.0	655.0	12227.8	5.5	-2.8	55.0
600.0	600.0	14557.3	-1.4	-4.4	80.0
581.0	581.0	15398.4	-3.1	-9.4	62.0
553.0	553.0	16677.4	-6.3	-9.9	76.0
533.0	533.0	17626.1	-5.7	-25.2	20.0
477.0	477.0	20452.0	-12.1	-30.1	21.0
461.0	461.0	21309.3	-12.6	-32.1	18.0
400.0	400.0	24812.2	-21.4	-39.0	19.0
319.0	319.0	30155.8	-34.8	-50.0	20.0
249.0	249.0	35683.8	-48.6	0.	**
217.0	217.0	38621.4	-54.9	0.	**
144.0	144.0	47043.2	-65.7	0.	**
132.0	132.0	48792.9	-64.1	0.	**
112.0	112.0	52068.9	-69.3	0.	**
100.0	100.0	54331.4	-63.7	0.	**
55.0	55.0	66529.2	-60.3	0.	**
40.0	40.0	73176.0	-54.5	0.	**
24.0	24.0	84059.9	-51.6	0.	**
17.5	17.5	90954.1	-44.2	0.	**
10.0	10.0	103437.7	-42.0	0.	**
5.9	5.9	115329.3	-40.0	0.	**

\*\* RELATIVE HUMIDITY NOT SUPPLIED. ZERO VALUE ASSUMED FOR COMPUTATIONS.

STATION ALTITUDE 3989.0 FEET MSL  
 5 SEPT. 68  
 ASCENSION NO. 722

UPPER AIR DATA  
 0312003907  
 WHITE SANDS SITE

WSTM SITE COORDINATES  
 E 488.580 FEET  
 N 185.045 FEET

TABLE VII

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE						
3989.0	881.5	20.0	13.6	66.0	1040.8	668.9	100.0	6.0	1.000300
4000.0	881.2	20.0	13.5	65.6	1040.3	668.9	100.5	6.0	1.000300
4500.0	865.7	19.9	11.1	56.2	1023.2	668.5	121.5	6.8	1.000286
5000.0	850.5	19.1	10.4	56.8	1008.3	667.5	142.6	7.6	1.000280
5500.0	835.5	18.2	9.8	57.4	993.7	666.5	163.7	8.4	1.000275
6000.0	820.8	17.4	9.1	58.0	979.2	665.4	181.7	9.5	1.000270
6500.0	806.4	16.5	8.4	58.6	955.0	664.4	186.8	12.2	1.000265
7000.0	792.1	15.9	7.5	57.3	950.2	663.6	189.6	13.7	1.000259
7500.0	778.1	15.6	6.2	53.3	934.7	663.1	191.2	14.5	1.000251
8000.0	764.2	15.3	4.7	49.3	919.4	662.7	199.1	13.0	1.000244
8500.0	750.6	14.8	3.4	46.2	904.7	662.0	211.2	11.3	1.000237
9000.0	737.0	13.5	2.6	47.4	892.3	660.5	227.9	9.6	1.000233
9500.0	723.7	12.3	1.8	48.6	880.1	659.1	236.7	9.4	1.000228
10000.0	710.6	11.0	1.0	49.7	868.1	657.6	242.0	9.2	1.000224
10500.0	697.7	9.8	0.1	50.9	856.2	656.1	241.6	8.6	1.000220
11000.0	685.1	8.6	-0.7	52.1	844.6	654.6	242.4	7.3	1.000216
11500.0	672.7	7.3	-1.6	53.3	833.1	653.1	243.9	5.7	1.000212
12000.0	660.5	6.1	-2.4	54.5	821.8	651.6	260.6	4.1	1.000208
12500.0	648.3	4.7	-2.9	57.9	810.7	650.0	281.9	2.4	1.000205
13000.0	636.2	3.2	-3.1	63.3	799.8	648.2	317.8	2.9	1.000202
13500.0	624.4	1.7	-3.4	68.7	789.1	646.5	355.4	3.6	1.000200
14000.0	612.7	0.3	-3.8	74.0	778.6	644.7	2.8	4.8	1.000197
14500.0	601.3	-1.2	-4.4	79.4	768.3	643.0	9.0	6.1	1.000194
15000.0	589.9	-2.3	-7.0	70.5	757.1	641.6	6.6	7.1	1.000187
15500.0	578.7	-3.4	-9.4	63.1	745.9	640.2	3.4	8.0	1.000182
16000.0	567.7	-4.6	-9.5	68.6	735.0	638.7	356.8	8.5	1.000179
16500.0	556.8	-5.9	-9.8	74.1	724.3	637.2	346.8	9.1	1.000177
17000.0	546.1	-6.1	-13.3	57.0	711.4	636.8	330.6	9.6	1.000170
17500.0	535.6	-5.8	-21.7	27.4	697.4	636.9	318.1	10.4	1.000161
18000.0	525.2	-6.5	-25.8	20.1	686.0	635.9	308.2	11.5	1.000157

STATION ALTITUDE 3989.0 FEET MSL  
 5 SEPT. 68  
 ASCENSION NO. 722

UPPER AIR DATA  
 0312003907  
 WHITE SANDS SITE

WSTM SITE COORDINATES  
 E 488.580 FEET  
 N 185.045 FEET

TABLE VII (Cont).

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TM)	SPEED KNOTS	INDEX OF REFRACTION
18500.0	515.0	-7.7	20.3	675.6	634.6	302.2	13.2	1.000154
19000.0	505.0	-8.8	20.5	655.3	633.2	297.8	14.8	1.000152
19500.0	495.2	-9.9	20.7	655.2	631.9	302.2	15.2	1.000149
20000.0	485.5	-11.1	20.8	645.2	630.5	306.3	15.6	1.000147
20500.0	476.1	-12.1	20.8	635.2	629.2	309.9	16.0	1.000144
21000.0	466.7	-12.4	19.1	623.4	628.8	313.3	16.4	1.000141
21500.0	457.5	-13.1	18.1	612.6	628.0	316.1	16.5	1.000139
22000.0	448.3	-14.3	18.2	603.3	626.5	317.8	16.5	1.000136
22500.0	439.3	-15.6	18.3	594.1	625.0	318.1	16.2	1.000134
23000.0	430.5	-16.8	18.5	585.0	623.5	316.6	16.5	1.000132
23500.0	421.8	-18.1	18.6	576.1	621.9	313.1	17.3	1.000130
24000.0	413.4	-19.4	18.8	557.4	620.4	310.5	17.8	1.000128
24500.0	405.1	-20.6	18.9	558.8	618.8	308.9	18.0	1.000126
25000.0	396.8	-21.9	19.0	550.1	617.3	306.5	18.7	1.000124
25500.0	388.5	-23.1	19.1	541.3	615.7	303.3	19.8	1.000122
26000.0	380.4	-24.4	19.2	532.7	614.2	301.5	20.2	1.000120
26500.0	372.4	-25.6	19.3	524.1	612.6	300.7	20.1	1.000118
27000.0	364.6	-26.9	19.4	515.8	611.1	299.8	20.9	1.000116
27500.0	357.0	-28.1	19.5	507.6	609.5	298.9	22.3	1.000114
28000.0	349.5	-29.4	19.6	499.5	608.0	298.1	23.0	1.000112
28500.0	342.2	-30.6	19.7	491.6	606.4	297.6	22.9	1.000110
29000.0	335.0	-31.9	19.8	483.8	604.8	297.2	23.4	1.000108
29500.0	328.0	-33.2	19.9	476.1	603.2	297.1	24.8	1.000107
30000.0	321.1	-34.4	20.0	468.6	601.7	296.9	25.7	1.000105
30500.0	314.1	-35.7	18.8**	460.8	600.1	296.6	25.2	1.000103
31000.0	307.2	-36.9	16.9**	453.0	598.5	296.3	25.4	1.000101
31500.0	300.4	-38.2	15.1**	445.3	596.9	296.1	26.6	1.000099
32000.0	293.7	-39.4	13.3**	437.8	595.3	295.7	26.7	1.000098
32500.0	287.2	-40.7	11.5**	430.4	593.7	295.1	26.0	1.000096
33000.0	280.8	-41.9	9.7**	423.1	592.1	294.3	27.3	1.000094

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

STATION ALTITUDE 3989.0 FEET MSL  
 5 SEPT. 68 0300 HRS EDT  
 ASCENSION NO. 722

UPPER AIR DATA  
 0312003907  
 WHITE SANDS SITE

WSTM SITE COORDINATES  
 E 488.580 FEET  
 N 185.045 FEET

TABLE VII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
33500.0	274.6	-43.1	-64.3	7.9**	416.0	590.5	293.4	29.5	1.000093	
34000.0	268.5	-44.4	-67.2	6.1**	409.0	583.9	291.8	30.8	1.000091	
34500.0	262.6	-45.6	-70.6	4.3**	402.1	587.3	290.0	32.2	1.000090	
35000.0	256.7	-46.9	-75.2	2.5**	395.4	585.7	288.0	33.8	1.000088	
35500.0	251.1	-48.1	-84.0	0.7**	388.8	584.1	285.5	34.7	1.000087	
36000.0	245.3	-49.3	0.	0.	381.8	582.6	282.3	34.3	1.000085	
36500.0	239.7	-50.4	0.	0.	374.8	581.2	279.3	34.0	1.000083	
37000.0	234.1	-51.4	0.	0.	367.9	579.8	276.6	33.9	1.000082	
37500.0	228.7	-52.5	0.	0.	361.1	578.4	273.2	34.0	1.000080	
38000.0	223.4	-53.6	0.	0.	354.5	577.0	268.4	34.2	1.000079	
38500.0	218.2	-54.6	0.	0.	348.0	575.6	264.5	34.8	1.000077	
39000.0	213.0	-55.4	0.	0.	340.8	574.6	262.9	36.5	1.000076	
39500.0	207.9	-56.0	0.	0.	333.6	573.8	261.8	38.2	1.000074	
40000.0	202.9	-56.7	0.	0.	326.6	572.9	261.6	40.3	1.000073	
40500.0	198.0	-57.3	0.	0.	319.7	572.1	262.1	42.4	1.000071	
41000.0	193.3	-58.0	0.	0.	312.9	571.2	263.5	44.7	1.000070	
41500.0	188.6	-58.6	0.	0.	306.3	570.4	265.1	45.8	1.000068	
42000.0	184.1	-59.2	0.	0.	299.8	569.5	266.9	44.6	1.000067	
42500.0	179.7	-59.9	0.	0.	293.5	568.6	268.5	43.2	1.000065	
43000.0	175.3	-60.5	0.	0.	287.3	567.8	269.3	41.4	1.000064	
43500.0	171.1	-61.2	0.	0.	281.2	566.9	270.1	39.5	1.000063	
44000.0	167.0	-61.8	0.	0.	275.3	566.1	269.1	37.1	1.000061	
44500.0	163.0	-62.4	0.	0.	269.5	565.2	267.9	34.5	1.000060	
45000.0	159.1	-63.1	0.	0.	263.8	564.4	266.1	32.7	1.000059	
45500.0	155.2	-63.7	0.	0.	258.3	563.5	263.7	31.9	1.000058	
46000.0	151.5	-64.4	0.	0.	252.8	562.6	261.3	31.2	1.000056	
46500.0	147.9	-65.0	0.	0.	247.5	561.8	260.2	30.8	1.000055	
47000.0	144.3	-65.6	0.	0.	242.3	560.9	259.5	30.4	1.000054	
47500.0	140.8	-65.3	0.	0.	235.9	561.4	258.9	30.1	1.000053	
48000.0	137.3	-64.8	0.	0.	229.6	562.0	261.9	29.4	1.000051	

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

STATION ALTITUDE 3989.0 FEET MSL  
 5 SEPT. 68 0300 HRS MDT  
 ASCENSION NO. 722

UPPER AIR DATA  
 0312003907  
 WHITE SANDS SITE

WSTM SITE COORDINATES  
 E 488.580 FEET  
 N 185.045 FEET

TABLE VII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES CENTIGRADE	DEHPOINT				DIRECTION DEGREES(TN)	SPEED KNOTS	
48500.0	133.9	-64.4	0.	-0.	223.5	562.6	265.0	28.6	1.000050
49000.0	130.6	-64.4	0.	-0.	218.1	562.5	268.0	27.9	1.000049
49500.0	127.4	-65.2	0.	-0.	213.5	561.5	268.6	25.8	1.000048
50000.0	124.2	-66.0	0.	-0.	209.0	560.4	269.2	23.7	1.000047
50500.0	121.2	-66.8	0.	-0.	204.6	559.3	269.9	21.6	1.000046
51000.0	118.2	-67.6	0.	-0.	200.3	558.2	269.8	21.3	1.000045
51500.0	115.2	-68.4	0.	-0.	196.1	557.2	269.6	21.3	1.000044
52000.0	112.4	-69.2	0.	-0.	192.0	556.1	269.4	21.4	1.000043
52500.0	109.6	-68.2	0.	-0.	186.4	557.4	267.3	20.2	1.000041
53000.0	106.9	-67.0	0.	-0.	180.7	559.1	263.0	17.6	1.000040
53500.0	104.3	-65.8	0.	-0.	175.1	560.7	258.8	15.0	1.000039
54000.0	101.7	-64.5	0.	-0.	159.8	562.4	254.5	12.5	1.000038
54500.0	99.2	-63.7	0.	-0.	164.9	563.6	257.4	12.3	1.000037
55000.0	96.8	-63.5	0.	-0.	150.8	563.8	260.8	12.2	1.000036
55500.0	94.4	-63.4	0.	-0.	156.8	564.0	264.1	12.2	1.000035
56000.0	92.1	-63.2	0.	-0.	152.9	564.2	262.6	11.6	1.000034
56500.0	89.9	-63.1	0.	-0.	149.1	564.3	252.2	9.9	1.000033
57000.0	87.7	-63.0	0.	-0.	145.4	564.5	241.7	8.3	1.000032
57500.0	85.6	-62.8	0.	-0.	141.8	564.7	231.2	6.6	1.000032
58000.0	83.5	-62.7	0.	-0.	138.3	564.9	236.3	7.0	1.000031
58500.0	81.5	-62.5	0.	-0.	134.9	565.1	246.7	8.1	1.000030
59000.0	79.5	-62.4	0.	-0.	131.5	565.3	257.0	9.2	1.000029
59500.0	77.6	-62.3	0.	-0.	128.2	565.5	264.2	10.0	1.000029
60000.0	75.7	-62.1	0.	-0.	125.1	565.6	253.1	9.6	1.000028
60500.0	73.9	-62.0	0.	-0.	121.9	565.8	242.0	9.3	1.000027
61000.0	72.1	-61.8	0.	-0.	118.9	566.0	230.9	8.9	1.000026
61500.0	70.4	-61.7	0.	-0.	116.0	566.2	224.2	8.4	1.000026
62000.0	68.7	-61.6	0.	-0.	113.1	566.4	221.3	7.8	1.000025
62500.0	67.0	-61.4	0.	-0.	110.3	566.6	218.4	7.3	1.000025
63000.0	65.4	-61.3	0.	-0.	107.5	566.8	215.5	6.7	1.000024

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

UPPER AIR DATA  
0312003907  
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL  
5 SEPT. 68 0300 HRS MDT  
ASCENSION NO. 722

WSTM SITE COORDINATES  
E 488,580 FEET  
N 185,045 FEET

TABLE VII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
63500.0	63.8	-61.1	-0. **	104.9	567.0	211.0	7.0	1.000023
64000.0	62.3	-61.0	-0. **	102.2	567.1	206.4	7.4	1.000023
64500.0	60.8	-60.9	-0. **	99.7	567.3	201.7	7.8	1.000022
65000.0	59.3	-60.7	-0. **	97.2	567.5	197.1	8.1	1.000022
65500.0	57.8	-60.6	-0. **	94.8	567.7	209.1	7.3	1.000021
66000.0	56.4	-60.4	-0. **	92.5	567.9	222.3	6.3	1.000021
66500.0	55.1	-60.3	-0. **	90.2	568.1	235.5	5.3	1.000020
67000.0	53.8	-59.9	-0. **	87.9	568.6	248.7	4.3	1.000020
67500.0	52.5	-59.5	-0. **	85.6	569.2	263.8	4.6	1.000019
68000.0	51.3	-59.0	-0. **	83.4	569.8	279.9	5.6	1.000019
68500.0	50.0	-58.6	-0. **	81.3	570.4	296.1	6.6	1.000018
69000.0	48.9	-58.1	-0. **	79.2	570.9	312.2	7.5	1.000018
69500.0	47.7	-57.7	-0. **	77.1	571.5	327.4	8.4	1.000017
70000.0	46.6	-57.3	-0. **	75.2	572.1	340.5	8.9	1.000017
70500.0	45.5	-56.8	-0. **	73.2	572.7	353.6	9.4	1.000016
71000.0	44.4	-56.4	-0. **	71.4	573.3	6.7	9.9	1.000016
71500.0	43.3	-56.0	-0. **	69.5	573.8	19.6	10.4	1.000015
72000.0	42.3	-55.5	-0. **	67.8	574.4	31.6	10.9	1.000015
72500.0	41.3	-55.1	-0. **	66.0	575.0	43.6	11.4	1.000015
73000.0	40.3	-54.7	-0. **	64.3	575.6	55.5	11.9	1.000014
73500.0	39.4	-54.4	-0. **	62.8	575.9	63.7	12.8	1.000014
74000.0	38.5	-54.3	-0. **	61.3	576.1	65.3	14.2	1.000014
74500.0	37.6	-54.1	-0. **	59.8	576.2	66.9	15.6	1.000013
75000.0	36.7	-54.0	-0. **	58.4	576.4	68.5	17.0	1.000013
75500.0	35.9	-53.9	-0. **	57.0	576.6	70.4	18.1	1.000013
76000.0	35.0	-53.7	-0. **	55.6	576.8	72.4	19.1	1.000012
76500.0	34.2	-53.6	-0. **	54.3	576.9	74.4	20.1	1.000012
77000.0	33.4	-53.5	-0. **	53.0	577.1	75.2	20.7	1.000012
77500.0	32.7	-53.3	-0. **	51.8	577.3	75.4	21.2	1.000012
78000.0	31.9	-53.2	-0. **	50.5	577.5	75.7	21.7	1.000011

H3

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

STATION ALTITUDE 3989.0 FEET MSL  
 5 SEPT. 68 0300 HRS MDT  
 ASCENSION NO. 722

UPPER AIR DATA  
 0312003907  
 WHITE SANDS SITE

WSTM SITE COORDINATES  
 E 488.580 FEET  
 N 185.045 FEET

TABLE VII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
78500.0	31.2	-53.1	0.	-0.	49.3	577.6	77.4	22.5	1.000011
79000.0	30.4	-52.9	0.	-0.	48.2	577.8	82.0	24.2	1.000011
79500.0	29.7	-52.8	0.	-0.	47.0	578.0	86.6	25.9	1.000010
80000.0	29.0	-52.7	0.	-0.	45.9	578.2	91.2	27.6	1.000010
80500.0	28.4	-52.5	0.	-0.	44.8	578.3	94.1	26.2	1.000010
81000.0	27.7	-52.4	0.	-0.	43.7	578.5	97.0	24.6	1.000010
81500.0	27.1	-52.3	0.	-0.	42.7	578.7	99.9	23.1	1.000010
82000.0	26.4	-52.1	0.	-0.	41.7	578.9	100.1	21.8	1.000009
82500.0	25.8	-52.0	0.	-0.	40.7	579.0	98.8	20.6	1.000009
83000.0	25.2	-51.9	0.	-0.	39.7	579.2	97.6	19.5	1.000009
83500.0	24.6	-51.7	0.	-0.	38.8	579.4	98.1	18.6	1.000009
84000.0	24.1	-51.6	0.	-0.	37.9	579.6	100.4	18.1	1.000008
84500.0	23.5	-51.1	0.	-0.	36.9	580.2	102.8	17.6	1.000008
85000.0	23.0	-50.6	0.	-0.	35.0	580.9	103.2	17.5	1.000008
85500.0	22.5	-50.1	0.	-0.	35.1	581.6	100.5	18.1	1.000008
86000.0	22.0	-49.5	0.	-0.	34.2	582.3	97.8	18.8	1.000008
86500.0	21.5	-49.0	0.	-0.	33.4	583.0	96.0	19.3	1.000007
87000.0	21.0	-48.4	0.	-0.	32.5	583.7	97.0	19.7	1.000007
87500.0	20.5	-47.9	0.	-0.	31.7	584.4	97.9	20.0	1.000007
88000.0	20.0	-47.4	0.	-0.	30.9	585.1	98.4	20.2	1.000007
88500.0	19.6	-46.8	0.	-0.	30.1	585.8	96.0	20.1	1.000007
89000.0	19.1	-46.3	0.	-0.	29.4	586.5	93.7	20.0	1.000007
89500.0	18.7	-45.8	0.	-0.	28.7	587.2	91.3	19.9	1.000006
90000.0	18.3	-45.2	0.	-0.	27.9	587.9	87.4	20.7	1.000006
90500.0	17.9	-44.7	0.	-0.	27.2	588.5	83.6	21.5	1.000006
91000.0	17.5	-44.2	0.	-0.	26.6	589.2	79.8	22.4	1.000006
91500.0	17.1	-44.1	0.	-0.	26.0	589.3	78.1	23.2	1.000006
92000.0	16.7	-44.0	0.	-0.	25.4	589.4	76.7	24.0	1.000006
92500.0	16.3	-43.9	0.	-0.	24.8	589.5	75.2	24.8	1.000006
93000.0	16.0	-43.8	0.	-0.	24.3	589.6	76.0	24.7	1.000005

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

UPPER AIR DATA  
0312003907  
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL  
5 SEPT. 68 0300 HRS MDT  
ASCENSION NO. 722

MSTM SITE COORDINATES  
E 488.580 FEET  
N 185.045 FEET

TABLE VII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
93500.0	15.6	-43.8	0.	-0. **	23.7	589.7	77.5	24.4	1.000005
94000.0	15.3	-43.7	0.	-0. **	23.2	589.9	79.1	24.1	1.000005
94500.0	14.9	-43.6	0.	-0. **	22.7	590.0	81.0	23.6	1.000005
95000.0	14.6	-43.5	0.	-0. **	22.1	590.1	83.1	22.8	1.000005
95500.0	14.3	-43.4	0.	-0. **	21.6	590.2	85.3	22.1	1.000005
96000.0	14.0	-43.3	0.	-0. **	21.2	590.3	86.2	21.5	1.000005
96500.0	13.6	-43.2	0.	-0. **	20.7	590.4	85.0	21.1	1.000005
97000.0	13.3	-43.1	0.	-0. **	20.2	590.5	83.8	20.6	1.000005
97500.0	13.0	-43.0	0.	-0. **	19.8	590.7	82.5	20.4	1.000004
98000.0	12.8	-43.0	0.	-0. **	19.3	590.8	80.8	21.3	1.000004
98500.0	12.5	-42.9	0.	-0. **	18.9	590.9	79.0	22.2	1.000004
99000.0	12.2	-42.8	0.	-0. **	18.5	591.0	77.3	23.1	1.000004
99500.0	11.9	-42.7	0.	-0. **	18.0	591.1	78.2	23.4	1.000004
100000.0	11.7	-42.6	0.	-0. **	17.6	591.2	79.2	23.8	1.000004
100500.0	11.4	-42.5	0.	-0. **	17.2	591.3	80.2	24.2	1.000004
101000.0	11.2	-42.4	0.	-0. **	16.8	591.4	83.5	25.4	1.000004
101500.0	10.9	-42.3	0.	-0. **	16.5	591.6	87.3	26.7	1.000004
102000.0	10.7	-42.3	0.	-0. **	16.1	591.7	91.1	28.1	1.000004
102500.0	10.4	-42.2	0.	-0. **	15.7	591.8	92.9	28.7	1.000004
103000.0	10.2	-42.1	0.	-0. **	15.4	591.9	92.9	28.6	1.000003
103500.0	10.0	-42.0	0.	-0. **	15.0	592.0	93.0	28.6	1.000003
104000.0	9.8	-41.9	0.	-0. **	14.7	592.1	93.2	28.7	1.000003
104500.0	9.5	-41.8	0.	-0. **	14.4	592.2	93.8	29.4	1.000003
105000.0	9.3	-41.7	0.	-0. **	14.0	592.3	94.4	30.2	1.000003
105500.0	9.1	-41.7	0.	-0. **	13.7	592.4	95.1	31.0	1.000003
106000.0	8.9	-41.6	0.	-0. **	13.4	592.5	94.9	31.2	1.000003
106500.0	8.7	-41.5	0.	-0. **	13.1	592.7	94.2	31.0	1.000003
107000.0	8.5	-41.4	0.	-0. **	12.8	592.8	93.5	30.8	1.000003
107500.0	8.4	-41.3	0.	-0. **	12.5	592.9	92.8	30.5	1.000003
108000.0	8.2	-41.2	0.	-0. **	12.3	593.0	94.0	31.1	1.000003

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

STATION ALTITUDE 3989.0 FEET MSL  
 5 SEPT. 68  
 ASCENSION NO. 722  
 0300 HRS MDT

UPPER AIR DATA  
 0312003907  
 WHITE SANDS SITE

WSTM SITE COORDINATES  
 E 488.580 FEET  
 N 185.045 FEET

TABLE VII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
108500.0	8.0	-41.1	-0. **	12.0	593.1	95.2	31.7	1.0000003
109000.0	7.8	-41.1	-0. **	11.7	593.2	96.4	32.3	1.0000003
109500.0	7.6	-41.0	-0. **	11.5	593.3	97.3	33.0	1.0000003
110000.0	7.5	-40.9	-0. **	11.2	593.4	97.8	33.9	1.0000002
110500.0	7.3	-40.8	-0. **	11.0	593.5	98.4	34.7	1.0000002
111000.0	7.1	-40.7	-0. **	10.7	593.6	98.9	35.5	1.0000002
111500.0	7.0	-40.6	-0. **	10.5	593.7			1.0000002
112000.0	6.8	-40.6	-0. **	10.2	593.8			1.0000002
112500.0	6.7	-40.5	-0. **	10.0	593.9			1.0000002
113000.0	6.5	-40.4	-0. **	9.8	594.1			1.0000002
113500.0	6.4	-40.3	-0. **	9.6	594.2			1.0000002
114000.0	6.3	-40.2	-0. **	9.4	594.3			1.0000002
114500.0	6.1	-40.1	-0. **	9.2	594.4			1.0000002
115000.0	6.0	-40.1	-0. **	8.9	594.5			1.0000002

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

WSTM SITE COORDINATES  
 E 88,580 FEET  
 N 185,045 FEET

MANDATORY LEVELS  
 0312003907  
 WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL  
 5 SEPT. 68 0300 HRS MDT  
 ASCENSION NO. 722

TABLE VIII

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	WIND DATA		
					DIRECTION DEGREES(TN)	SPEED KNOTS	SPEED KNOTS
850.0	5019.	19.1	10.4	57.	143.4	7.6	7.6
800.0	6722.	16.1	8.1	59.	188.9	13.2	13.2
750.0	8520.	14.7	3.3	46.	212.0	11.2	11.2
700.0	10420.	10.0	0.3	51.	241.7	8.6	8.6
650.0	12425.	4.9	-2.9	57.	279.0	2.7	2.7
600.0	14545.	-1.4	-4.4	80.	8.7	6.2	6.2
550.0	16801.	-6.2	-11.3	68.	336.6	9.4	9.4
500.0	19241.	-9.4	-28.0	21.	300.1	15.0	15.0
450.0	21887.	-14.1	-33.3	18.	317.8	16.6	16.6
400.0	24779.	-21.4	-39.0	19.	307.7	18.3	18.3
350.0	27959.	-29.3	-45.4	20.	298.1	23.0	23.0
300.0	31505.	-38.2	-55.3	15.**	296.1	26.7	26.7
250.0	35532.	-48.4	-88.2	0.**	284.9	34.6	34.6
200.0	40248.	-57.0	0.	0.**	261.5	41.6	41.6
175.0	42998.	-60.6	0.	0.**	269.4	41.1	41.1
150.0	46117.	-64.6	0.	0.**	260.6	31.0	31.0
125.0	49765.	-65.8	0.	0.**	269.1	24.2	24.2
100.0	54185.	-63.7	0.	0.**	256.2	12.3	12.3
80.0	58690.	-62.4	0.	0.**	254.0	8.8	8.8
70.0	61399.	-61.7	0.	0.**	223.8	8.3	8.3
60.0	64538.	-60.8	0.	0.**	199.5	7.9	7.9
50.0	68273.	-58.6	0.	0.**	296.0	6.6	6.6
40.0	72919.	-54.5	0.	0.**	59.7	12.1	12.1
30.0	78986.	-52.5	0.	0.**	84.6	25.2	25.2
25.0	82855.	-51.8	0.	0.**	97.2	19.1	19.1
20.0	87642.	-47.3	0.	0.**	98.3	20.2	20.2
15.0	93956.	-43.6	0.	0.**	80.4	23.7	23.7
10.0	102932.	-42.0	0.	0.**	93.0	28.6	28.6
7.0	110878.	-40.6	0.	0.**			

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

STATION ALTITUDE 3989.0 FEET MSL  
 5 SEPT. 68  
 ASCENSION NO. 72

0530 HRS MDT

SIGNIFICANT LEVEL DATA  
 0295003905  
 WHITE SANDS SITE

WSTM SITE COORDINATES  
 E 488,580 FEET  
 N 185,045 FEET

TABLE IX

PRESSURE GEOMETRIC ALTITUDE		TEMPERATURE		REL. HUM. PERCENT
HILLIBARS MSL FEET	ALTITUDE	AIR DEGREES	DEWPOINT CENTIGRADE	
881.7	3989.0	18.0	13.6	75.0
872.0	4301.0	18.5	11.9	65.0
850.0	5022.9	19.1	12.5	65.0
801.0	6692.5	15.8	10.2	69.0
765.0	7977.7	16.2	3.3	42.0
733.0	9166.3	13.8	-0.3	38.0
659.0	12071.8	5.7	-2.2	57.0
609.0	14172.9	-0.2	-4.7	72.0
589.0	15049.5	-2.0	-7.7	65.0
578.0	15541.7	-3.1	-6.9	75.0
571.0	15859.6	-2.2	-17.9	29.0
543.0	17166.5	-4.5	-28.1	14.0
484.0	20108.8	-10.7	-28.4	22.0
481.0	20266.1	-10.7	-26.2	27.0
475.0	20583.6	-10.6	-31.6	16.0
398.0	24964.5	-21.5	-37.6	22.0
315.0	30481.1	-35.3	-49.2	23.0
240.0	36515.2	-50.7	0.	-0. **
224.0	37986.7	-53.4	0.	-0. **
190.0	41439.6	-58.1	0.	-0. **
175.0	43132.5	-61.6	0.	-0. **
167.0	44086.6	-62.2	0.	-0. **
162.0	44703.5	-63.7	0.	-0. **
136.0	48240.8	-63.7	0.	-0. **
113.0	51941.8	-68.9	0.	-0. **
89.0	56732.4	-62.0	0.	-0. **
60.0	64849.6	-58.3	0.	-0. **
30.0	79452.1	-52.4	0.	-0. **
23.0	85251.8	-43.2	0.	-0. **
20.0	88350.9	-45.5	0.	-0. **

\*\* RELATIVE HUMIDITY NOT SUPPLIED. ZERO VALUE ASSUMED FOR COMPUTATIONS.

STATION ALTITUDE 3989.0 FEET MSL  
5 SEPT. 68  
ASCENSION NO. 723

SIGNIFICANT LEVEL DATA  
0295003905  
WHITE SANDS SITE

WSTM SITE COORDINATES  
E 488,580 FEET  
N 185,045 FEET

TABLE IX (Cont)

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT
13.0 97859.9	-45.4	0. **
6.4 113826.3	-36.5	0. **

\*\* RELATIVE HUMIDITY NOT SUPPLIED. ZERO VALUE ASSUMED FOR COMPUTATIONS.

UPPER AIR DATA  
0295003905  
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL  
5 SEPT. 68  
ASCENSION NO. 723

WSTM SITE COORDINATES  
E 488,580 FEET  
N 185,045 FEET

TABLE X

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
					KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
3989.0	881.7	18.0	75.0	1048.1	666.6	300.0	3.1	1.000303	
4000.0	881.4	18.0	74.6	1047.7	666.6	299.4	3.1	1.000302	
4500.0	865.9	18.7	65.0	1027.5	667.2	272.6	4.6	1.000291	
5000.0	850.7	19.1	65.0	1007.8	667.8	245.8	6.0	1.000288	
5500.0	835.7	18.2	66.1	993.3	666.7	219.1	7.4	1.000283	
6000.0	821.0	17.2	67.3	979.3	665.5	192.3	8.9	1.000278	
6500.0	806.5	16.2	68.5	965.5	664.3	179.3	9.6	1.000272	
7000.0	792.2	15.9	62.5	949.8	663.8	187.5	9.2	1.000263	
7500.0	778.2	16.1	52.0	933.2	663.7	200.5	8.7	1.000251	
8000.0	764.4	16.2	41.9	917.1	663.6	217.8	8.1	1.000239	
8500.0	750.8	15.1	40.2	904.2	662.3	230.1	8.1	1.000233	
9000.0	737.4	14.1	38.6	891.5	661.0	239.5	8.3	1.000227	
9500.0	724.1	12.9	40.2	879.3	659.5	246.0	9.2	1.000224	
10000.0	711.0	11.5	43.5	867.6	657.9	251.1	10.3	1.000221	
10500.0	698.1	10.1	46.7	856.0	656.3	253.7	9.8	1.000218	
11000.0	685.4	8.7	50.0	844.7	654.7	255.2	8.7	1.000215	
11500.0	672.9	7.3	53.3	833.5	653.1	262.5	7.5	1.000212	
12000.0	660.7	5.9	56.5	822.5	651.4	272.6	6.3	1.000209	
12500.0	648.5	4.5	60.1	811.4	649.8	293.2	4.6	1.000206	
13000.0	636.4	3.1	63.6	800.4	648.1	319.1	2.7	1.000202	
13500.0	624.6	1.7	67.2	789.6	646.4	337.6	2.3	1.000199	
14000.0	613.0	0.3	70.8	778.9	644.7	354.0	2.3	1.000196	
14500.0	601.5	-0.9	69.4	767.7	643.3	338.3	2.6	1.000191	
15000.0	590.1	-1.9	65.4	756.3	642.0	323.0	2.8	1.000186	
15500.0	578.9	-3.0	74.2	744.9	640.7	317.1	3.5	1.000185	
16000.0	567.9	-2.4	27.4	730.3	640.9	316.3	4.7	1.000170	
16500.0	557.1	-3.3	21.6	718.9	639.8	323.4	6.4	1.000165	
17000.0	546.5	-4.2	15.9	707.6	638.7	325.9	8.3	1.000161	
17500.0	536.0	-5.2	14.9	696.6	637.5	324.9	10.1	1.000158	
18000.0	525.6	-6.3	16.3	685.8	636.3	323.3	11.6	1.000156	

UPPER AIR DATA  
 0295003905  
 WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL  
 5 SEPT.68 0530 HRS MDT  
 ASCENSION NO. 723

WSTM SITE COORDINATES  
 E 488,580 FEET  
 N 185,045 FEET

TABLE X (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
18500.0	515.4	-7.3	-27.9	17.6	675.2	635.0	321.4	12.9	1.000154
19000.0	505.4	-8.4	-28.0	19.0	664.8	633.8	318.0	13.8	1.000151
19500.0	495.7	-9.4	-28.1	20.3	654.5	632.5	313.9	14.5	1.000149
20000.0	486.1	-10.5	-28.3	21.7	644.4	631.2	313.0	14.2	1.000147
20500.0	476.6	-10.6	-29.9	18.9	632.2	631.0	312.8	13.7	1.000144
21000.0	467.1	-11.6	-32.1	16.6	622.1	629.8	312.3	13.3	1.000141
21500.0	457.7	-12.9	-32.8	17.3	612.6	628.3	311.8	13.1	1.000139
22000.0	448.6	-14.1	-33.4	17.9	603.2	626.8	311.4	13.2	1.000136
22500.0	439.6	-15.4	-34.1	18.6	594.0	625.3	311.4	13.7	1.000134
23000.0	430.9	-16.6	-34.8	19.3	585.0	623.7	312.1	14.9	1.000132
23500.0	422.2	-17.9	-35.5	20.0	576.1	622.2	313.0	16.3	1.000130
24000.0	413.8	-19.1	-36.2	20.7	567.4	620.7	314.0	17.9	1.000128
24500.0	405.5	-20.3	-36.9	21.4	558.8	619.2	314.7	18.8	1.000126
25000.0	397.4	-21.6	-37.7	22.0	550.3	617.6	315.4	19.3	1.000124
25500.0	389.1	-22.8	-38.8	22.1	541.4	616.1	315.9	19.3	1.000122
26000.0	380.9	-24.1	-39.8	22.2	532.8	614.6	316.4	19.3	1.000120
26500.0	372.9	-25.3	-40.8	22.3	524.2	613.0	315.9	19.3	1.000118
27000.0	365.1	-26.6	-41.9	22.4	515.8	611.5	315.3	19.3	1.000116
27500.0	357.4	-27.8	-42.9	22.5	507.6	609.9	313.6	20.2	1.000114
28000.0	349.9	-29.1	-44.0	22.6	499.5	608.3	311.8	21.3	1.000112
28500.0	342.6	-30.2	-45.0	22.6	491.6	606.8	309.6	22.0	1.000110
29000.0	335.4	-31.6	-46.1	22.7	483.7	605.2	307.3	22.7	1.000108
29500.0	328.4	-32.8	-47.1	22.8	476.1	603.6	305.5	23.0	1.000107
30000.0	321.5	-34.1	-48.2	22.9	468.5	602.1	303.9	23.4	1.000105
30500.0	314.7	-35.3	-49.3	22.9**	461.1	600.5	302.6	24.1	1.000103
31000.0	307.7	-36.6	-51.1	21.0**	453.3	598.9	301.4	25.0	1.000101
31500.0	300.9	-37.9	-53.0	19.1**	445.6	597.2	297.8	26.1	1.000100
32000.0	294.2	-39.2	-55.0	17.2**	438.0	595.6	293.9	27.3	1.000098
32500.0	287.6	-40.5	-57.0	15.3**	430.6	594.0	289.7	28.6	1.000096
33000.0	281.2	-41.7	-59.1	13.4**	423.3	592.4	285.4	29.8	1.000094

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

UPPER AIR DATA  
0295003905  
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL  
5 SEPT. 68 0530 HRS MDT  
ASCENSION NO. 723

WSTM SITE COORDINATES  
E 488,580 FEET  
N 185,045 FEET

TABLE X (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX QF REFRACTION
							DIRECTION DEGREES(TN)	SPEED KNOTS	
33500.0	274.9	-43.0	-61.4	11.5**	416.2	590.7	279.9	29.6	1.000093
34000.0	268.8	-44.3	-63.8	9.6**	409.2	589.1	274.5	29.4	1.000091
34500.0	262.8	-45.6	-66.4	7.7**	402.3	587.4	272.5	30.1	1.000090
35000.0	257.0	-46.8	-69.5	5.8**	395.6	585.8	270.5	30.8	1.000088
35500.0	251.2	-48.1	-73.1	3.9**	389.0	584.1	269.1	31.2	1.000087
36000.0	245.6	-49.4	-78.4	2.0**	382.5	582.5	267.8	31.7	1.000085
36500.0	240.2	-50.7	-98.3	0.1**	376.1	580.8	268.3	33.6	1.000084
37000.0	234.6	-51.6	0.	-0. **	368.9	579.6	268.8	35.3	1.000082
37500.0	229.2	-52.5	0.	-0. **	361.9	578.4	267.7	34.4	1.000081
38000.0	223.9	-53.4	0.	-0. **	355.0	577.2	266.6	33.5	1.000079
38500.0	218.6	-54.1	0.	-0. **	347.7	576.3	265.3	33.7	1.000077
39000.0	213.4	-54.8	0.	-0. **	340.5	575.4	264.1	34.0	1.000076
39500.0	208.4	-55.5	0.	-0. **	333.6	574.5	262.6	35.1	1.000074
40000.0	203.5	-56.1	0.	-0. **	326.7	573.6	261.2	36.4	1.000073
40500.0	198.7	-56.8	0.	-0. **	320.0	572.7	261.2	38.2	1.000071
41000.0	194.0	-57.5	0.	-0. **	313.5	571.8	261.3	40.1	1.000070
41500.0	189.4	-58.2	0.	-0. **	307.1	570.8	262.4	40.7	1.000068
42000.0	184.9	-59.3	0.	-0. **	301.2	569.5	263.5	41.2	1.000067
42500.0	180.5	-60.3	0.	-0. **	295.4	568.1	265.1	39.5	1.000066
43000.0	176.1	-61.3	0.	-0. **	289.7	566.7	266.7	37.3	1.000065
43500.0	171.9	-61.8	0.	-0. **	283.4	566.0	268.0	36.0	1.000063
44000.0	167.7	-62.1	0.	-0. **	276.9	565.6	269.2	35.1	1.000062
44500.0	163.6	-63.2	0.	-0. **	271.6	564.2	268.9	34.0	1.000060
45000.0	159.6	-63.7	0.	-0. **	265.6	563.5	267.7	32.9	1.000059
45500.0	155.7	-63.7	0.	-0. **	259.1	563.5	265.8	32.2	1.000058
46000.0	151.9	-63.7	0.	-0. **	252.7	563.5	263.4	31.9	1.000056
46500.0	148.2	-63.7	0.	-0. **	246.6	563.5	262.0	30.8	1.000055
47000.0	144.6	-63.7	0.	-0. **	240.5	563.5	261.2	29.1	1.000054
47500.0	141.1	-63.7	0.	-0. **	234.7	563.5	261.2	27.6	1.000052
48000.0	137.6	-63.7	0.	-0. **	228.9	563.5	262.1	26.2	1.000051

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

UPPER AIR DATA  
0295003905  
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL  
5 SEPT.68  
ASCENSION NO. 723

WSTM SITE COORDINATES  
E 489,580 FEET  
N 185,045 FEET

TABLE X (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEMPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
48500.0	134.2	-64.1	0.	-0. **	223.7	563.0	263.7	24.7	1.000050
49000.0	130.9	-64.8	0.	-0. **	218.9	562.1	264.6	23.1	1.000049
49500.0	127.7	-65.5	0.	-0. **	214.2	561.1	268.9	21.7	1.000048
50000.0	124.5	-66.2	0.	-0. **	209.6	560.2	268.3	21.2	1.000047
50500.0	121.5	-66.9	0.	-0. **	205.1	559.2	267.8	20.8	1.000046
51000.0	118.5	-67.6	0.	-0. **	200.8	558.3	267.8	20.0	1.000045
51500.0	115.5	-68.3	0.	-0. **	196.5	557.3	267.7	19.2	1.000044
52000.0	112.7	-68.8	0.	-0. **	192.1	556.6	267.0	19.1	1.000043
52500.0	109.9	-68.1	0.	-0. **	186.7	557.6	266.2	19.1	1.000042
53000.0	107.2	-67.4	0.	-0. **	181.5	558.6	270.5	18.7	1.000040
53500.0	104.6	-66.7	0.	-0. **	176.4	559.5	277.8	18.1	1.000039
54000.0	102.0	-65.9	0.	-0. **	171.5	560.5	281.6	17.9	1.000038
54500.0	99.5	-65.2	0.	-0. **	166.7	561.5	281.4	18.3	1.000037
55000.0	97.0	-64.5	0.	-0. **	162.0	562.5	281.3	18.6	1.000036
55500.0	94.6	-63.8	0.	-0. **	157.5	563.4	281.3	18.3	1.000035
56000.0	92.3	-63.1	0.	-0. **	153.1	564.4	279.6	18.0	1.000034
56500.0	90.0	-62.3	0.	-0. **	148.8	565.4	259.9	17.2	1.000033
57000.0	87.9	-61.9	0.	-0. **	144.9	566.0	240.3	16.3	1.000032
57500.0	85.7	-61.7	0.	-0. **	141.2	566.3	242.7	15.2	1.000031
58000.0	83.7	-61.4	0.	-0. **	137.7	566.6	248.6	14.1	1.000031
58500.0	81.7	-61.2	0.	-0. **	134.3	566.9	254.1	13.4	1.000030
59000.0	79.7	-61.0	0.	-0. **	130.9	567.2	259.2	13.1	1.000029
59500.0	77.8	-60.7	0.	-0. **	127.6	567.5	268.7	12.4	1.000028
60000.0	75.9	-60.5	0.	-0. **	124.4	567.8	285.3	11.4	1.000028
60500.0	74.1	-60.3	0.	-0. **	121.3	568.1	297.3	9.8	1.000027
61000.0	72.3	-60.1	0.	-0. **	118.3	568.4	287.4	5.4	1.000026
61500.0	70.6	-59.8	0.	-0. **	115.3	568.7	277.5	1.1	1.000026
62000.0	68.9	-59.6	0.	-0. **	112.4	569.0	213.9	3.2	1.000025
62500.0	67.3	-59.4	0.	-0. **	109.6	569.3	147.6	5.7	1.000024
63000.0	65.6	-59.1	0.	-0. **	106.9	569.6	128.7	6.2	1.000024

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

UPPER AIR DATA  
0295003905  
WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL  
5 SEPT. 68 .0530 HRS MDT  
ASCENSION NO. 723

MSTM SITE COORDINATES  
E 488,580 FEET  
N 185,045 FEET

TABLE X (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DIRECTION DEGREES(TN)	WIND SPEED KNOTS	INDEX OF REFRACTION
63500.0	64.1	-58.9	0.	-0.	104.2	569.9	127.0	5.9	1.000023
64000.0	62.5	-58.7	0.	-0.	101.6	570.2	102.4	4.6	1.000023
64500.0	61.0	-58.5	0.	-0.	99.0	570.5	57.0	2.2	1.000022
65000.0	59.6	-58.2	0.	-0.	96.6	570.8	29.7	1.4	1.000022
65500.0	58.2	-58.0	0.	-0.	94.2	571.1	41.6	4.0	1.000021
66000.0	56.8	-57.8	0.	-0.	91.9	571.4	53.1	6.7	1.000020
66500.0	55.5	-57.6	0.	-0.	89.7	571.6	59.8	9.3	1.000020
67000.0	54.2	-57.4	0.	-0.	87.5	571.9	66.5	11.9	1.000019
67500.0	52.9	-57.2	0.	-0.	85.4	572.2	71.7	14.8	1.000019
68000.0	51.7	-57.0	0.	-0.	83.3	572.4	76.7	17.6	1.000019
68500.0	50.5	-56.8	0.	-0.	81.3	572.7	82.0	18.6	1.000018
69000.0	49.3	-56.6	0.	-0.	79.3	573.0	87.4	18.3	1.000018
69500.0	48.1	-56.4	0.	-0.	77.4	573.2	90.9	18.0	1.000017
70000.0	47.0	-56.2	0.	-0.	75.5	573.5	90.9	17.5	1.000017
70500.0	45.9	-56.0	0.	-0.	73.6	573.8	90.8	17.0	1.000016
71000.0	44.8	-55.8	0.	-0.	71.8	574.0	91.1	17.1	1.000016
71500.0	43.8	-55.6	0.	-0.	70.1	574.3	91.4	17.3	1.000016
72000.0	42.7	-55.4	0.	-0.	68.4	574.6	88.4	20.4	1.000015
72500.0	41.7	-55.2	0.	-0.	66.7	574.8	83.8	25.2	1.000015
73000.0	40.8	-55.0	0.	-0.	65.1	575.1	79.9	27.5	1.000014
73500.0	39.8	-54.8	0.	-0.	63.5	575.4	78.3	23.2	1.000014
74000.0	38.9	-54.6	0.	-0.	62.0	575.6	76.7	18.9	1.000014
74500.0	37.9	-54.4	0.	-0.	60.4	575.9	78.1	20.2	1.000013
75000.0	37.1	-54.2	0.	-0.	59.0	576.2	80.0	22.2	1.000013
75500.0	36.2	-54.0	0.	-0.	57.5	576.4	82.1	20.7	1.000013
76000.0	35.3	-53.8	0.	-0.	56.1	576.7	84.4	15.2	1.000012
76500.0	34.5	-53.6	0.	-0.	54.8	577.0	86.5	10.4	1.000012
77000.0	33.7	-53.4	0.	-0.	53.4	577.2	86.4	13.6	1.000012
77500.0	32.9	-53.2	0.	-0.	52.1	577.5	86.3	16.9	1.000012
78000.0	32.1	-53.0	0.	-0.	50.9	577.8	83.4	15.9	1.000011

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

STATION ALTITUDE 3989.0 FEET MSL  
 5 SEPT. 68  
 ASCENSION NO. 723  
 0530 HRS. MDT

UPPER AIR DATA  
 0295003905  
 WHITE SANDS SITE

WSTM SITE COORDINATES  
 E 488,580 FEET  
 N 185,045 FEET

TABLE X (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
78500.0	31.4	-52.8	-0. **	49.6	578.0	79.1	13.1	1.000011
79000.0	30.7	-52.6	-0. **	48.4	578.3	75.7	11.2	1.000011
79500.0	29.9	-52.3	-0. **	47.2	578.6	74.2	11.5	1.000011
80000.0	29.3	-51.5	-0. **	46.0	579.7	72.6	11.8	1.000010
80500.0	28.6	-50.7	-0. **	44.8	580.7	70.8	12.1	1.000010
81000.0	27.9	-49.9	-0. **	43.6	581.7	68.1	12.3	1.000010
81500.0	27.3	-49.2	-0. **	42.5	582.8	65.4	12.4	1.000009
82000.0	26.7	-48.4	-0. **	41.4	583.8	62.8	12.6	1.000009
82500.0	26.1	-47.6	-0. **	40.3	584.8	63.3	13.2	1.000009
83000.0	25.5	-46.8	-0. **	39.2	585.9	65.6	14.1	1.000009
83500.0	24.9	-46.0	-0. **	38.2	586.9	67.9	15.0	1.000009
84000.0	24.4	-45.2	-0. **	37.2	587.9	70.3	15.9	1.000008
84500.0	23.8	-44.4	-0. **	36.3	588.9	72.4	15.6	1.000008
85000.0	23.3	-43.6	-0. **	35.3	589.9	74.5	15.3	1.000008
85500.0	22.7	-43.4	-0. **	34.5	590.2	76.5	15.0	1.000008
86000.0	22.2	-43.8	-0. **	33.8	589.7	78.2	15.2	1.000008
86500.0	21.7	-44.1	-0. **	33.1	589.3	79.0	16.7	1.000007
87000.0	21.3	-44.5	-0. **	32.4	588.8	79.8	18.1	1.000007
87500.0	20.8	-44.9	-0. **	31.7	588.3	80.6	19.5	1.000007
88000.0	20.3	-45.2	-0. **	31.1	587.8	80.3	20.1	1.000007
88500.0	19.9	-45.5	-0. **	30.4	587.5	79.3	20.1	1.000007
89000.0	19.4	-45.5	-0. **	29.7	587.5	78.4	20.1	1.000007
89500.0	19.0	-45.5	-0. **	29.1	587.5	77.4	20.2	1.000006
90000.0	18.6	-45.5	-0. **	28.4	587.5	78.3	21.8	1.000006
90500.0	18.1	-45.5	-0. **	27.8	587.5	79.4	23.6	1.000006
91000.0	17.7	-45.5	-0. **	27.1	587.5	80.5	25.4	1.000006
91500.0	17.3	-45.5	-0. **	26.5	587.5	82.1	26.7	1.000006
92000.0	17.0	-45.5	-0. **	25.9	587.5	85.4	26.5	1.000006
92500.0	16.6	-45.5	-0. **	25.4	587.6	88.8	26.3	1.000006
93000.0	16.2	-45.5	-0. **	24.8	587.6	92.2	26.1	1.000006

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

STATION ALTITUDE 3989.0 FEET MSL  
 5 SEPT. 68  
 ASCENSION NO. 723  
 0530 HRS MDT

UPPER AIR DATA  
 0295003905  
 WHITE SANDS SITE

WSTM SITE COORDINATES  
 E 488,580 FEET  
 N 185,045 FEET

TABLE X (Cont).

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES CENTIGRADE	DEWPOINT DEGREES CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
93500.0	15.8	-45.4	0.	-0. **	24.2	587.6	94.0	26.0	1.000005
94000.0	15.5	-45.4	0.	-0. **	23.7	587.6	94.6	26.0	1.000005
94500.0	15.1	-45.4	0.	-0. **	23.2	587.6	95.2	26.0	1.000005
95000.0	14.8	-45.4	0.	-0. **	22.6	587.6	95.8	26.0	1.000005
95500.0	14.5	-45.4	0.	-0. **	22.1	587.6	94.5	25.8	1.000005
96000.0	14.1	-45.4	0.	-0. **	21.6	587.6	93.0	25.7	1.000005
96500.0	13.8	-45.4	0.	-0. **	21.2	587.6	91.4	25.5	1.000005
97000.0	13.5	-45.4	0.	-0. **	20.7	587.6	89.6	25.4	1.000005
97500.0	13.2	-45.4	0.	-0. **	20.2	587.6	86.5	25.5	1.000005
98000.0	12.9	-45.3	0.	-0. **	19.8	587.7	83.3	25.6	1.000004
98500.0	12.6	-45.0	0.	-0. **	19.3	588.1	80.2	25.6	1.000004
99000.0	12.4	-44.8	0.	-0. **	18.9	588.4	78.4	26.1	1.000004
99500.0	12.1	-44.5	0.	-0. **	18.4	588.8	78.1	26.9	1.000004
100000.0	11.8	-44.2	0.	-0. **	18.0	589.2	77.9	27.7	1.000004
100500.0	11.6	-43.9	0.	-0. **	17.6	589.5	77.6	28.5	1.000004
101000.0	11.3	-43.6	0.	-0. **	17.2	589.9	78.2	28.7	1.000004
101500.0	11.1	-43.4	0.	-0. **	16.8	590.2	79.2	28.6	1.000004
102000.0	10.8	-43.1	0.	-0. **	16.4	590.6	80.1	28.5	1.000004
102500.0	10.6	-42.8	0.	-0. **	16.0	591.0	81.0	28.4	1.000004
103000.0	10.3	-42.5	0.	-0. **	15.6	591.3	80.1	28.1	1.000003
103500.0	10.1	-42.3	0.	-0. **	15.3	591.7	79.0	27.8	1.000003
104000.0	9.9	-42.0	0.	-0. **	14.9	592.0	77.9	27.5	1.000003
104500.0	9.7	-41.7	0.	-0. **	14.6	592.4	77.5	27.4	1.000003
105000.0	9.5	-41.4	0.	-0. **	14.2	592.7	80.1	27.7	1.000003
105500.0	9.3	-41.1	0.	-0. **	13.9	593.1	82.7	28.1	1.000003
106000.0	9.1	-40.9	0.	-0. **	13.6	593.5	85.2	28.5	1.000003
106500.0	8.9	-40.6	0.	-0. **	13.3	593.8	86.8	29.1	1.000003
107000.0	8.7	-40.3	0.	-0. **	13.0	594.2	87.5	29.8	1.000003
107500.0	8.5	-40.0	0.	-0. **	12.7	594.5	88.2	30.6	1.000003
108000.0	8.3	-39.7	0.	-0. **	12.4	594.9	89.0	31.5	1.000003

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

UPPER AIR DATA  
 0295003905  
 WHITE SANDS SITE

STATION ALTITUDE 3989.0 FEET MSL  
 5 SEPT.68 0530 HRS MDT  
 ASCENSION NO. 723

WSTM SITE COORDINATES  
 E 488,580 FEET  
 N 185,045 FEET

TABLE X (Cont.)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
					KNOTS	DEGREES(TN)	DIRECTION	SPEED KNOTS	
108500.0	8.1	-39.5	-0. **	12.1	595.2	94.9	42.1	1.000003	
109000.0	7.9	-39.2	-0. **	11.8	595.6	100.9	52.8	1.000003	
109500.0	7.8	-38.9	-0. **	11.5	595.9	106.8	63.4	1.000003	
110000.0	7.6	-38.6	-0. **	11.3	596.3			1.000003	
110500.0	7.4	-38.4	-0. **	11.0	596.6			1.000002	
111000.0	7.3	-38.1	-0. **	10.8	597.0			1.000002	
111500.0	7.1	-37.8	-0. **	10.5	597.4			1.000002	
112000.0	6.9	-37.5	-0. **	10.3	597.7			1.000002	
112500.0	6.8	-37.2	-0. **	10.0	598.1			1.000002	
113000.0	6.6	-37.0	-0. **	9.8	598.4			1.000002	
113500.0	6.5	-36.7	-0. **	9.6	598.8			1.000002	

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

STATION ALTITUDE 3989.0 FEET MSL  
 5 SEPT. 68  
 ASCENSION NO. 723

MANDATORY LEVELS  
 0295003905  
 WHITE SANDS SITE

WSTM SITE COORDINATES  
 E 488,500 FEET  
 N 185,045 FEET

TABLE XI

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	5021.	19.1	12.5	65.	244.6	6.1
800.0	6725.	15.8	10.1	68.	183.0	9.4
750.0	8525.	15.1	1.7	40.	230.7	8.1
700.0	10427.	10.3	-0.7	46.	253.5	10.0
650.0	12432.	4.7	-2.5	60.	290.1	4.8
600.0	14552.	-1.0	-6.0	69.	336.2	2.6
550.0	16818.	-3.9	-24.9	18.	326.3	7.6
500.0	19263.	-8.9	-28.0	20.	315.7	14.2
450.0	21916.	-13.9	-33.3	18.	311.4	13.2
400.0	24809.	-21.2	-37.5	22.	315.2	19.1
350.0	27992.	-29.1	-44.0	23.	311.7	21.4
300.0	31541.	-38.1	-53.3	19.**	297.1	26.3
250.0	35570.	-48.4	-74.1	3.**	268.8	31.3
200.0	40289.	-56.6	0.	-0.**	261.2	37.7
175.0	43038.	-61.6	0.	-0.**	267.1	36.8
150.0	46151.	-63.7	0.	-0.**	262.4	31.6
125.0	49811.	-66.1	0.	-0.**	268.4	21.3
100.0	54226.	-65.4	0.	-0.**	281.4	18.2
80.0	58740.	-61.0	0.	-0.**	258.2	13.1
70.0	61470.	-59.7	0.	-0.**	260.2	1.5
60.0	64642.	-58.3	0.	-0.**	26.0	0.6
50.0	68420.	-56.7	0.	-0.**	83.6	18.5
40.0	73081.	-54.8	0.	-0.**	78.8	24.6
30.0	79150.	-52.4	0.	-0.**	74.3	11.5
25.0	83073.	-46.1	0.	-0.**	67.5	14.8
20.0	87977.	-45.5	0.	-0.**	79.6	20.1
15.0	94272.	-45.4	0.	-0.**	95.4	26.0
10.0	103187.	-42.1	0.	-0.**	78.6	27.7
7.0	111183.	-37.6	0.	-0.**		

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

RELEASE TIME (MDT)	SECOND-STAGE IMPACT DISPLACEMENT IN MILLS DUE TO WIND												AZI- MUTH (DEG- REES)	THEORETICAL IMPACT FROM LAUNCHER (IN MILES)			
	15-216 FT				216-4000 FT				4000-69330 FT					TOTAL	RANGE	N-S	E-W
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W							
RAWIN- SONDE																	
PFBAL																	
0300	0400	9.0E	10.3S	10.1E	1.1S	20.1W	18.3S	1.0W	012.8	60.7	59.2N	13.4E					
0300	0430	4.9S	6.8E	8.8E	1.1S	20.1W	20.0S	4.5W	009.8	58.3	57.5N	9.9E					
0300	0500	1.0S	2.6E	4.9E	1.1S	20.1W	13.6S	12.6W	001.6	63.9	63.9N	1.8E					
0300	0515	0.3S	3.5W	2.7E	1.1S	20.1W	11.4S	20.9W	354.4	66.4	66.1N	6.5W					
0300	0530	0.0	2.7W	2.0E	1.1S	20.1W	8.3S	20.8W	354.7	69.5	69.2N	6.4W					
0300	0540	0.0	2.8W	2.5E	1.1S	20.1W	6.9S	20.4W	355.1	70.9	70.6N	6.0W					
0300	0550	0.0	2.1W	3.8E	1.1S	20.1W	7.5S	18.4W	356.7	70.1	70.0N	4.0W					
0530	0600*	0.7S	1.1W	5.3E	3.5S	18.6W	11.8S	14.4W	360.0	65.7	65.7N	0.0					

\*Post-Shoot Data

\*\*Sonic Observation of the  
Trajectory and Impact of  
Missiles.

AZI- MUTH (DEG- REES)	MILES FROM LAUNCHER		
	RANGE	N-S	E-W
LAUNCHER SETTING (ELEVATION 84.5 DEGREES QE)	79.9	77.5N	19.3E
NO WIND IMPACT	78.8	77.5N	14.4E
PREDICTED SECOND-STAGE IMPACT	70.0	69.9N	3.7W
SECOND-STAGE IMPACT, SOTIM**	73.0	72.9N	3.8W
PREDICTED BOOSTER IMPACT	1.2	0.9N	0.8E
ACTUAL BOOSTER IMPACT	N/A	N/A	N/A

TABLE XII. IMPACT PREDICTION DATA  
NIKE-HYDAC STV, SR-073

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R & D .

(Security classification of this, body of abstract and indexing annotation must be entered when the overall report is classified)

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9. DISTRIBUTION STATEMENT This document is subject to special export controls and each transmittal to foreign governments or foreign nationals may be made only with prior approval of Atmospheric Science Research Office, White Sands Missile Range, New Mexico.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY U. S. Army Electronics Command Atmospheric Science Research Office White Sands Missile Range, New Mexico	
13. ABSTRACT  Meteorological data gathered for the launching of Nike-Hydac STV, SR-073, are presented for the Space and Missile Systems Organization and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.			

DD FORM 1473  
1 NOV 65

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

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Security Classification

UNCLASSIFIED

Security Classification

14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
1. Ballistics 2. Meteorology 3. Wind						

UNCLASSIFIED

Security Classification