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October 1968

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AD841072

METEOROLOGICAL DATA REPORT

NIKE-HYDAC STV, SR-074
(5 September 1968)

BY

GORDON L. DUNAWAY

ATMOSPHERIC SCIENCE RESEARCH OFFICE
WHITE SANDS MISSILE RANGE, NEW MEXICO

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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-074, are presented for the Space and Missile Systems Organization and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.

CONTENTS

	PAGE
ABSTRACT -----	111
INTRODUCTION -----	1
DISCUSSION -----	1
TABLES	
I. Theoretical Rocket Performance Values -----	2
II. Ballistic Factors -----	3
III. Anemometer-Wind Speed and Direction -----	4
IV. Pilot-Balloon-Measured Wind Data -----	5
V. Rawinsonde-Measured Wind Data -----	6
VI. Significant Level Data (Release Time: 0530 MDT) -----	7
VII. Upper Air Data (Release Time: 0530 MDT) -----	9
VIII. Mandatory Levels (Release Time: 0530 MDT) -----	18
IX. Significant Level Data (Release Time: 0815 MDT) -----	19
X. Upper Air Data (Release Time: 0815 MDT) -----	21
XI. Mandatory Levels (Release Time: 0815 MDT) -----	29
XII. Impact Prediction Data -----	30

INTRODUCTION

Nike-Hydac STV, SR-074, was launched from LC-33, L-314, White Sands Missile Range (WSMR), New Mexico, at 0800 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
CORIOLIS DISPLACEMENT	WEST	4.9	Miles
	TIME	20.0	Seconds
SECOND-STAGE IGNITION	ALTITUDE	35,760	Feet MSL
	TIME	236	Seconds
PEAK	ALTITUDE	716,000	Feet MSL
		2.51	Miles/MPH
UNIT WIND EFFECT		2.60	Miles/MPH
		2.52	Miles/MPH
TOWER TILT EFFECT		14.53	Miles/Degree

TABLE I. THEORETICAL ROCKET PERFORMANCE VALUES
NIKE-HYDAC STV, SR-074

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- 148	.053	2000- 2500	.055	31770-36000	.129
148- 184	.041	2500- 3000	.028	36000-41000	.057
184- 216	.025	3000- 3500	.014	41000-46000	.026
216- 300	.062	3500- 4000	.005	46000-51000	.013
300- 400	.058	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-074

AERO-VANE NO. *	MEAN WIND COMPONENTS IN MILES PER HOUR									
	1. 0630 MDT		2. 0700 MDT		3. 0715 MDT		4. 0730 MDT		5. 0740 MDT	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
1	2.0S	4.0W	2.0S	2.0W	2.0S	4.0W	3.0S	2.0W	2.0S	1.0W
2	2.0	3.0	2.0	3.0	2.0	4.0	2.0	4.0	0.0	3.0
3	2.0	2.0	3.0	4.0	2.0	4.0	3.0	4.0	0.0	4.0
4	2.0	0.0	2.0	1.0	1.0	1.0	3.0	1.0	1.0S	1.0
5	1.0	1.0W	2.0	2.0	0.0	1.0	2.0	2.0	1.0N	3.0

AERO-VANE NO. *	MEAN WIND COMPONENTS IN MILES PER HOUR									
	6. 0750 MDT		7. 0800 MDT							
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
1	2.0S	2.0W	3.0S	3.0W						
2	1.0	3.0	1.0	2.0						
3	2.0	3.0	2.0	3.0						
4	4.0	2.0	2.0	1.0						
5	3.0	2.0	2.0	1.0						

TABLE III. ANEMOMETER WIND SPEED AND DIRECTION
NIKE-HYDAC STW, SR-074

* 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 0630 MDT		2 0700 MDT		3 0715 MDT		4 0730 MDT		5 0740 MDT		6 0750 MDT		7 0800 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	N-S	E-W
216-300	2.0S	1.0E	2.5S	1.0W	2.5S	1.0W	2.5S	2.0W	1.5S	3.0W	4.0S	2.0W	1.5S	0.5W
300-400	3.5	2.5	3.5	0.5	3.5	0.5	4.5	4.5	4.0	2.0	3.5	1.5	1.5	0.0
400-600	4.5	4.0	3.5	1.5E	3.5	1.5E	7.0	2.0	4.5	0.0	3.0	0.5E	3.0	1.5E
600-800	5.0	6.0	3.5	3.5	3.5	3.5	2.0	4.0E	5.0	7.0E	2.5	4.5	4.0	4.5
800-1000	7.5	11.0	4.5	7.5	4.5	7.5	3.0	9.5	9.0	11.5	7.0	9.0	8.0	7.0
1000-1400	10.5	15.0	8.0	15.0	8.0	15.0	13.0	19.0	11.0	15.5	7.5	13.5	9.0	13.5
1400-2000	11.0	9.0	11.0	15.0	11.0	15.0	10.0	17.0	12.5	17.0	11.0	15.5	11.5	17.0
2000-2500	7.5	3.0	6.0	7.5	6.0	7.5	8.0	6.5	11.0	12.5	7.5	9.5	12.0	12.5
2500-3000	12.5	1.0	7.0	3.0	7.0	3.0	12.0	7.5	6.0	5.5	6.0	5.0	7.0	7.5
3000-3500	19.0	1.0W	13.5	4.0	16.0	2.5	10.0	5.0	11.0	5.0	9.0	4.5	9.0	4.5
3500-4000	16.0	6.0	18.0	1.5	16.0	4.0W	18.5	9.0	18.0	5.0	16.0	6.0	16.0	6.0

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA
NIKE-HYDAC STV, SR-074

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN MTS							
	1 0530 MDT				2 0815 MDT			
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
4000-4160	8.08	4.5W	10.6S	1.7E	10.6S	1.7E		
4160-9000	0.0	7.0	5.1	6.1W	5.1	6.1W		
9000-15000	4.5N	4.0	5.4N	4.5	5.4N	4.5		
15000-21000	9.5	11.5	10.7	9.0	10.7	9.0		
21000-26000	13.5	16.0	12.9	15.3	12.9	15.3		
26000-31770	5.0	27.5	4.5	25.6	4.5	25.6		
31770-36000	3.08	32.5	0.0	34.0	0.0	34.0		
36000-41000	6.5	35.5	0.0	36.0	0.0	36.0		
41000-46000	0.0	27.0	0.0	29.0	0.0	29.0		
46000-51000	3.0N	18.0	3.3N	18.7	3.3N	18.7		
51000-56000	2.58	13.0	2.18	11.8	2.18	11.8		
56000-61000	6.0	0.0	9.0	0.0	9.0	0.0		
61000-66000	6.5N	11.5E	1.9N	10.8E	1.9N	10.8E		
66000-69330	3.0	18.0	2.8	15.8	2.8	15.8		

TABLE V. RAWINSONDE-MEASURED WIND DATA
NIKE-HYDAC STY, SR-074

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

SIGNIFICANT LEVEL DATA
 0295003905
 WHITE SANDS SITE

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

TABLE VI

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	AIR TEMPERATURE DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT
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	14.2	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	20108.6	-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 0530 HRS MDT
ASCENSION NO. 723

SIGNIFICANT LEVEL DATA
0295003905
WHITE SANDS SITE

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

TABLE YI (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.

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

UPPER AIR DATA
 0295003905
 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		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
3989.0	881.7	18.0	13.6	75.0	1048.1	666.6	300.0	3.1	1.000303
4000.0	881.4	18.0	13.5	74.6	1047.7	666.6	299.4	3.1	1.000302
4500.0	865.9	18.7	12.0	65.0	1027.5	667.2	272.6	4.6	1.000291
5000.0	850.7	19.1	12.4	65.0	1007.8	667.8	245.8	6.0	1.000288
5500.0	835.7	18.2	11.8	66.1	993.3	666.7	219.1	7.4	1.000283
6000.0	821.0	17.2	11.1	67.3	979.3	665.5	192.3	8.9	1.000278
6500.0	806.5	16.2	10.5	68.5	965.5	664.3	179.3	9.6	1.000272
7000.0	792.2	15.9	8.8	62.5	949.8	663.8	187.5	9.2	1.000263
7500.0	778.2	16.1	6.3	52.0	933.2	663.7	200.5	8.7	1.000251
8000.0	764.4	16.2	3.2	41.9	917.1	663.6	217.8	8.1	1.000239
8500.0	750.8	15.1	1.8	40.2	904.2	662.3	230.1	8.1	1.000233
9000.0	737.4	14.1	0.2	38.6	891.5	661.0	239.5	8.3	1.000227
9500.0	724.1	12.9	-0.3	40.2	879.3	659.5	246.0	9.2	1.000224
10000.0	711.0	11.5	-0.5	43.5	867.6	657.9	251.1	10.3	1.000221
10500.0	698.1	10.1	-0.8	46.7	856.0	656.3	253.7	9.8	1.000218
11000.0	685.4	8.7	-1.1	50.0	844.7	654.7	255.2	8.7	1.000215
11500.0	672.9	7.3	-1.6	53.3	833.5	653.1	262.5	7.5	1.000212
12000.0	660.7	5.9	-2.1	56.5	822.5	651.4	272.6	6.3	1.000209
12500.0	648.5	4.5	-2.6	60.1	811.4	649.8	293.2	4.6	1.000206
13000.0	636.4	3.1	-3.1	63.6	800.4	648.1	319.1	2.7	1.000202
13500.0	624.6	1.7	-3.8	67.2	789.6	646.4	337.6	2.3	1.000199
14000.0	613.0	0.3	-4.4	70.8	778.9	644.7	354.0	2.3	1.000196
14500.0	601.5	-0.9	-5.8	69.4	767.7	643.3	338.3	2.6	1.000191
15000.0	590.1	-1.9	-7.6	65.4	756.3	642.0	323.0	2.8	1.000186
15500.0	578.9	-3.0	-7.0	74.2	744.9	640.7	317.1	3.5	1.000185
16000.0	567.9	-2.4	-18.8	27.4	730.3	640.9	316.3	4.7	1.000170
16500.0	557.1	-3.3	-22.3	21.6	718.9	639.8	323.4	6.4	1.000165
17000.0	546.5	-4.2	-26.4	15.9	707.6	638.7	325.9	8.3	1.000161
17500.0	536.0	-5.2	-28.0	14.9	696.6	637.5	324.9	10.1	1.000158
18000.0	525.6	-6.3	-27.9	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 VII (Cont)

GOMERIC 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	-30.3	-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.

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

UPPER AIR DATA
 0295003905
 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	DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE						
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

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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 0530 HRS MDT
 ASCENSION NO. 723

UPPER AIR DATA
 0295003905
 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	TEMPERATURE DEWPOINT DEGREES	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	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	266.6	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.

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

UPPER AIR DATA
 0295003905
 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	DEWPOINT CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
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 0530 HRS MDT
 ASCENSION NO. 723

UPPER AIR DATA
 0295003905
 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 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	79.9	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 0530 HRS MDT
 ASCENSION NO. 723
 UPPER AIR DATA
 0295003905
 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	TEMPERATURE DEWPOINT DEGREES	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
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.

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

UPPER AIR DATA
 0295003905
 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	WIND DIRECTION DEGREES(TN)	WIND SPEED KNOTS	INDEX OF REFRACTION
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
 0530 HRS MDT

MANDATORY LEVELS
 0295003905
 WHITE SANDS SITE

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

TABLE VIII

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES	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.	239.7	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.

STATION ALTITUDE 3989.0 FEET MSL
 5 SEPT. 68 0815 HRS MDT
 ASCENSION NO. 724

SIGNIFICANT LEVEL DATA
 0310003901
 WHITE SANDS SITE

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

TABLE IX

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT
883.6	3989.0	20.7	63.0
874.0	4298.3	18.6	50.0
806.0	6568.9	15.2	66.0
768.0	7907.8	11.9	76.0
764.0	8051.6	11.4	76.0
756.0	8341.9	7.4	59.0
738.0	9008.9	5.2	47.0
698.0	10542.8	2.6	33.0
586.0	15215.9	-5.1	56.0
568.0	16027.5	-10.2	46.0
565.0	16164.9	-14.1	31.0
560.0	16395.4	-18.7	15.0
547.0	17005.1	-26.8	16.0
500.0	19316.6	-3.5	17.0
486.0	20039.9	-8.6	16.0
400.0	24883.2	-9.0	16.0
324.0	29880.8	-21.0	18.0
246.0	36050.1	-33.1	-0. **
175.0	43230.9	-48.5	-0. **
161.0	44931.6	-60.6	-0. **
155.0	45704.0	-63.1	-0. **
148.0	46642.5	-61.9	-0. **
136.0	48353.4	-63.7	-0. **
123.0	50377.5	-63.5	-0. **
115.0	51724.4	0.0	-0. **
100.0	54530.8	-65.6	-0. **
84.0	58079.8	-66.0	-0. **
79.0	59333.3	-64.6	-0. **
71.0	61526.1	-60.4	-0. **
48.0	69672.4	-63.3	-0. **
		-58.1	-0. **
		-57.8	-0. **

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

STATION ALTITUDE 3989.0 FEET MSL
 5 SEPT. 68
 ASCENSION NO. 724

SIGNIFICANT LEVEL DATA
 0313003901
 WHITE SANDS SITE

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

TABLE IX (Cont)

PRESSURE GEOMETRIC ALTITUDE	TEMPERATURE AIR	REL. HUM. PERCENT
MILLIBARS MSL FEET	DEGREES CENTIGRADE	
46.0 70565.3	-54.9 0.	-0. **
41.0 72995.8	-54.9 0.	-0. **
21.0 87457.8	-44.8 0.	-0. **
10.0 93466.5	-45.6 0.	-0. **
10.0 103967.2	-40.0 0.	-0. **
7.0 112091.1	-37.1 0.	-0. **
6.0 115656.5	-33.1 0.	-0. **
3.9 125665.5	-35.1 0.	-0. **

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

UPPER AIR DATA
0313003901
WHITE SANDS SITE

TABLE X

STATION ALTITUDE 3989.0 FEET MSL
5 SEPT. 68 0815 HRS MDT
ASCENSION NO. 724

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

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	
3989.0	883.6	20.7	13.5	63.0	1040.8	669.7	0.	0.	1.000300
4000.0	883.3	20.6	13.3	62.5	1040.7	669.6	0.7	0.1	1.000299
4500.0	867.7	18.3	8.2	51.4	1032.5	666.3	30.6	2.6	1.000278
5000.0	852.4	17.5	8.5	54.9	1016.6	665.5	60.5	5.2	1.000276
5500.0	837.3	16.8	8.7	58.5	1001.1	664.7	90.5	7.7	1.000274
6000.0	822.5	16.1	8.8	62.0	985.8	663.9	120.4	10.3	1.000271
6500.0	808.0	15.3	8.9	65.5	970.7	663.1	140.5	11.2	1.000269
7000.0	793.6	14.1	8.6	69.2	957.3	661.7	153.1	10.7	1.000265
7500.0	779.4	12.9	8.2	73.0	944.3	660.3	164.9	10.2	1.000261
8000.0	765.4	11.6	7.6	76.0	931.8	658.7	176.4	9.5	1.000256
8500.0	751.7	13.2	4.7	56.2	910.8	660.3	190.0	9.6	1.000242
9000.0	738.2	13.7	2.7	47.2	893.3	660.7	203.6	9.7	1.000233
9500.0	724.9	12.7	0.3	42.5	880.8	659.4	214.7	9.2	1.000225
10000.0	711.9	11.6	-2.2	38.0	868.6	658.0	225.0	8.7	1.000218
10500.0	699.1	10.6	-4.9	33.4	856.5	656.6	233.5	8.2	1.000211
11000.0	686.2	9.2	-5.4	35.3	844.7	655.0	240.4	7.3	1.000208
11500.0	673.4	7.8	-5.7	37.7	833.2	653.4	245.7	6.0	1.000205
12000.0	661.0	6.4	-6.2	40.2	821.9	651.8	254.4	5.3	1.000202
12500.0	648.7	5.0	-6.7	42.6	810.8	650.1	264.2	4.8	1.000199
13000.0	636.7	3.6	-7.2	45.1	799.8	648.5	272.0	4.4	1.000196
13500.0	624.9	2.2	-7.8	47.6	789.0	646.8	279.8	4.1	1.000193
14000.0	613.3	0.8	-8.5	50.0	778.4	645.1	280.7	4.3	1.000190
14500.0	601.9	-0.6	-9.2	52.5	768.0	643.5	299.7	4.4	1.000187
15000.0	590.8	-2.0	-9.9	54.9	757.7	641.8	313.5	4.7	1.000184
15500.0	579.6	-3.1	-11.5	52.5	746.7	640.4	325.0	5.7	1.000180
16000.0	568.6	-4.0	-13.9	46.3	735.2	639.2	335.6	6.9	1.000175
16500.0	557.7	-3.8	-26.6	15.2	721.2	639.2	340.2	8.3	1.000164
17000.0	547.1	-3.5	-25.8	16.0	706.6	639.6	342.9	9.6	1.000161
17500.0	536.6	-4.6	-26.5	16.2	695.8	638.3	341.5	10.7	1.000159
18000.0	526.3	-5.7	-27.3	16.4	685.2	636.9	338.1	11.4	1.000156

STATION ALTITUDE 3989.0 FEET MSL
 5 SEPT. 68 0815 HRS MDT
 ASCENSION NO. 724

UPPER AIR DATA
 O313003901
 WHITE SANDS SITE
 TABLE X (Cont)

WSTM SITE COORDINATES
 E 488,980 FEET
 N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY CM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
18500.0	516.1	-6.8	-28.1	16.6	674.8	635.6	393.9	12.0	1.000154
19000.0	506.2	-7.9	-28.7	16.9	664.6	634.3	391.1	12.0	1.000151
19500.0	496.4	-8.7	-29.4	16.7	653.8	633.3	328.9	11.9	1.000148
20000.0	486.8	-9.0	-30.3	16.1	641.7	633.0	326.1	12.1	1.000146
20500.0	477.1	-10.1	-31.3	16.0	631.8	631.6	324.4	12.2	1.000143
21000.0	467.6	-11.4	-32.3	16.0	622.2	630.1	325.1	12.2	1.000141
21500.0	458.3	-12.6	-33.3	16.0	612.7	628.6	325.6	12.2	1.000139
22000.0	449.2	-13.9	-34.4	16.0	603.4	627.1	325.7	12.5	1.000136
22500.0	440.2	-15.1	-35.4	16.0	594.2	625.6	326.1	12.9	1.000134
23000.0	431.5	-16.3	-36.4	16.0	585.2	624.1	326.8	13.5	1.000132
23500.0	422.9	-17.6	-37.4	16.0	576.4	622.6	325.2	14.5	1.000130
24000.0	414.5	-18.8	-38.5	16.0	567.7	621.0	324.7	15.6	1.000128
24500.0	406.2	-20.1	-39.5	16.0	559.1	619.5	320.6	16.8	1.000126
25000.0	398.0	-21.3	-40.5	16.0	550.5	618.0	319.1	18.1	1.000124
25500.0	389.7	-22.5	-41.4	16.2	541.6	616.5	319.3	19.2	1.000122
26000.0	381.6	-23.7	-42.3	16.4	532.9	615.0	319.3	20.1	1.000120
26500.0	373.6	-24.9	-43.2	16.6	524.4	613.5	318.9	20.6	1.000118
27000.0	365.8	-26.1	-44.1	16.8	515.9	612.0	317.7	20.9	1.000116
27500.0	358.2	-27.3	-45.0	17.0	507.7	610.5	316.1	21.1	1.000114
28000.0	350.7	-28.5	-45.9	17.2	499.5	609.0	310.7	20.7	1.000112
28500.0	343.4	-29.8	-46.9	17.4	491.6	607.5	305.5	20.4	1.000110
29000.0	336.3	-31.0	-47.8	17.6	483.7	606.0	301.9	20.5	1.000108
29500.0	329.2	-32.2	-48.7	17.8	476.0	604.5	298.4	20.6	1.000106
30000.0	322.3	-33.4	-49.9	17.7**	468.3	602.9	295.1	20.7	1.000105
30500.0	315.2	-34.6	-51.7	16.2**	460.4	601.4	292.7	20.9	1.000103
31000.0	308.2	-35.9	-53.5	14.7**	452.6	599.8	291.0	21.3	1.000101
31500.0	301.4	-37.1	-55.4	13.3**	444.9	598.2	287.3	22.0	1.000099
32000.0	294.8	-38.4	-57.4	11.8**	437.4	596.6	282.8	22.8	1.000098
32500.0	288.2	-39.6	-59.4	10.4**	430.1	595.0	279.6	24.0	1.000096
33000.0	281.9	-40.9	-61.6	8.9**	422.8	593.4	274.5	25.7	1.000094

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

STATION ALTITUDE 3989.0 FEET MSL
 5 SEPT. 68 0815 HRS MDT
 ASCENSION NO. 724

UPPER AIR DATA
 0313003901
 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		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION, DEGREES(TIN)	SPEED KNOTS	
33500.0	275.7	-42.1	-63.9	7.4**	415.7	591.8	274.8	26.8	1.000093	
34000.0	269.6	-43.4	-66.5	6.0**	408.8	590.2	273.4	28.3	1.000091	
34500.0	263.6	-44.6	-69.4	4.5**	401.9	588.6	273.3	29.6	1.000090	
35000.0	257.8	-45.9	-73.0	3.1**	395.2	587.0	273.2	30.8	1.000088	
35500.0	252.1	-47.1	-78.1	1.6**	388.6	585.4	272.5	31.7	1.000087	
36000.0	246.6	-48.4	-92.5	0.1**	382.2	583.8	271.6	32.6	1.000085	
36500.0	240.8	-49.3	0.	0.	374.7	582.6	270.2	33.1	1.000083	
37000.0	235.2	-50.1	0.	0.	367.3	581.5	268.4	33.6	1.000082	
37500.0	229.7	-50.9	0.	0.	360.1	580.4	266.1	34.0	1.000080	
38000.0	224.3	-51.8	0.	0.	353.0	579.3	264.5	34.7	1.000079	
38500.0	219.0	-52.6	0.	0.	346.0	578.2	263.5	35.6	1.000077	
39000.0	213.9	-53.5	0.	0.	339.2	577.1	263.1	36.5	1.000076	
39500.0	208.9	-54.3	0.	0.	332.5	576.0	263.0	37.4	1.000074	
40000.0	204.0	-55.2	0.	0.	326.0	574.9	264.3	37.5	1.000073	
40500.0	199.2	-56.0	0.	0.	319.6	573.8	266.1	37.4	1.000071	
41000.0	194.5	-56.8	0.	0.	313.3	572.7	267.0	37.5	1.000070	
41500.0	190.0	-57.7	0.	0.	307.2	571.6	267.7	37.7	1.000068	
42000.0	185.5	-58.5	0.	0.	301.2	570.4	267.5	36.9	1.000067	
42500.0	181.2	-59.4	0.	0.	295.3	569.3	267.3	36.1	1.000066	
43000.0	176.9	-60.2	0.	0.	289.5	568.2	266.8	35.7	1.000064	
43500.0	172.7	-61.0	0.	0.	283.6	567.2	266.1	35.2	1.000063	
44000.0	168.5	-61.7	0.	0.	277.7	566.2	264.1	34.0	1.000062	
44500.0	164.4	-62.5	0.	0.	271.9	565.2	261.1	33.1	1.000061	
45000.0	160.5	-63.0	0.	0.	266.0	564.5	259.2	33.0	1.000059	
45500.0	156.6	-62.2	0.	0.	258.6	565.5	256.8	32.8	1.000058	
46000.0	152.8	-62.5	0.	0.	252.6	565.2	255.5	32.4	1.000056	
46500.0	149.0	-63.4	0.	0.	247.6	563.9	255.4	31.9	1.000055	
47000.0	145.4	-63.7	0.	0.	241.8	563.6	257.3	31.2	1.000054	
47500.0	141.9	-63.6	0.	0.	235.9	563.7	260.3	30.1	1.000053	
48000.0	138.4	-63.5	0.	0.	230.0	563.7	264.9	28.2	1.000051	

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

UPPER AIR DATA
0313003901
WHITE SANDS SITE

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

STATION ALTITUDE 3989.0 FEET MSL
5 SEPT. 68 0815 HRS MDT
ASCENSION NO., 724

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	
48500.0	135.0	-63.7	0.	-0. **	224.5	563.6	268.8	26.4	1.000050
49000.0	131.7	-64.2	0.	-0. **	219.6	562.9	271.6	24.6	1.000049
49500.0	128.5	-64.7	0.	-0. **	214.7	562.2	273.9	22.8	1.000048
50000.0	125.3	-65.2	0.	-0. **	210.0	561.5	275.3	21.0	1.000047
50500.0	122.2	-65.6	0.	-0. **	205.3	560.9	276.4	19.5	1.000046
51000.0	119.2	-65.8	0.	-0. **	200.3	560.7	276.3	18.8	1.000045
51500.0	116.3	-65.9	0.	-0. **	195.5	560.5	276.7	18.3	1.000044
52000.0	113.4	-65.9	0.	-0. **	190.7	560.6	279.1	18.2	1.000042
52500.0	110.6	-65.6	0.	-0. **	185.7	560.9	281.3	18.1	1.000041
53000.0	107.9	-65.4	0.	-0. **	181.0	561.3	283.0	17.9	1.000040
53500.0	105.3	-65.1	0.	-0. **	176.3	561.6	284.9	17.5	1.000039
54000.0	102.7	-64.9	0.	-0. **	171.8	562.0	287.7	16.0	1.000038
54500.0	100.2	-64.6	0.	-0. **	167.3	562.3	290.0	14.4	1.000037
55000.0	97.7	-64.0	0.	-0. **	162.8	563.1	289.4	12.7	1.000036
55500.0	95.3	-63.5	0.	-0. **	158.4	563.9	289.6	10.9	1.000035
56000.0	93.0	-62.9	0.	-0. **	154.1	564.7	293.7	9.5	1.000034
56500.0	90.8	-62.3	0.	-0. **	150.0	565.4	293.0	8.2	1.000033
57000.0	88.6	-61.7	0.	-0. **	145.9	566.2	273.2	7.9	1.000032
57500.0	86.4	-61.1	0.	-0. **	142.0	567.0	255.1	8.2	1.000032
58000.0	84.3	-60.5	0.	-0. **	138.2	567.8	242.5	10.1	1.000031
58500.0	82.3	-61.4	0.	-0. **	135.4	566.6	232.5	11.7	1.000030
59000.0	80.3	-62.5	0.	-0. **	132.8	565.1	230.3	12.4	1.000030
59500.0	78.4	-62.9	0.	-0. **	129.9	564.6	229.0	12.5	1.000029
60000.0	76.5	-61.7	0.	-0. **	126.0	566.2	230.0	10.9	1.000028
60500.0	74.6	-60.5	0.	-0. **	122.3	567.8	224.0	9.3	1.000027
61000.0	72.8	-59.3	0.	-0. **	118.7	569.3	201.6	7.7	1.000026
61500.0	71.1	-58.2	0.	-0. **	115.2	570.9	184.8	6.5	1.000026
62000.0	69.4	-58.1	0.	-0. **	112.4	571.0	180.5	6.3	1.000025
62500.0	67.8	-58.1	0.	-0. **	109.8	571.1	173.8	6.5	1.000024
63000.0	66.1	-58.0	0.	-0. **	107.1	571.1	162.1	7.6	1.000024

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

STATION ALTITUDE 3989.0 FEET MSL
 5 SEPT.68 0815 HRS MDT
 ASCENSION NO. 724

UPPER AIR DATA
 0313003901
 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	DEWPOINT CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
63500.0	64.6	-58.0	0.	**	104.6	571.1	150.6	7.9	1.000023
64000.0	63.0	-58.0	0.	**	102.1	571.1	139.9	6.1	1.000023
64500.0	61.5	-58.0	0.	**	99.7	571.2	128.1	4.9	1.000022
65000.0	60.1	-58.0	0.	**	97.3	571.2	111.3	6.3	1.000022
65500.0	58.7	-58.0	0.	**	95.0	571.2	94.3	7.7	1.000021
66000.0	57.3	-57.9	0.	**	92.7	571.2	75.0	8.8	1.000021
66500.0	55.9	-57.9	0.	**	90.5	571.3	55.7	9.8	1.000020
67000.0	54.6	-57.9	0.	**	88.3	571.3	56.9	11.0	1.000020
67500.0	53.3	-57.9	0.	**	86.2	571.3	58.7	12.2	1.000019
68000.0	52.0	-57.9	0.	**	84.2	571.3	62.6	12.7	1.000019
68500.0	50.8	-57.8	0.	**	82.2	571.3	66.8	13.1	1.000018
69000.0	49.6	-57.8	0.	**	80.2	571.4	73.5	13.5	1.000018
69500.0	48.4	-57.8	0.	**	78.3	571.4	80.9	13.8	1.000017
70000.0	47.3	-56.7	0.	**	76.1	572.8	83.4	13.5	1.000017
70500.0	46.1	-55.1	0.	**	73.7	575.0	82.9	12.8	1.000016
71000.0	45.1	-54.9	0.	**	71.9	575.2	82.3	12.3	1.000016
71500.0	44.0	-54.9	0.	**	70.3	575.2	81.2	12.2	1.000016
72000.0	43.0	-54.9	0.	**	68.6	575.2	79.7	12.2	1.000015
72500.0	42.0	-54.9	0.	**	67.0	575.2	73.6	12.3	1.000015
73000.0	41.0	-54.9	0.	**	65.4	575.2	67.4	12.4	1.000015
73500.0	40.1	-54.5	0.	**	63.8	575.7	65.7	12.7	1.000014
74000.0	39.1	-54.2	0.	**	62.3	576.2	64.9	13.1	1.000014
74500.0	38.2	-53.8	0.	**	60.8	576.6	65.4	13.8	1.000014
75000.0	37.4	-53.5	0.	**	59.3	577.1	67.3	14.8	1.000013
75500.0	36.5	-53.2	0.	**	57.8	577.5	69.9	15.7	1.000013
76000.0	35.7	-52.8	0.	**	56.4	578.0	77.0	16.0	1.000013
76500.0	34.9	-52.5	0.	**	55.0	578.5	84.1	16.4	1.000012
77000.0	34.1	-52.1	0.	**	53.7	578.9	89.2	17.7	1.000012
77500.0	33.3	-51.8	0.	**	52.4	579.4	93.8	19.2	1.000012
78000.0	32.5	-51.4	0.	**	51.1	579.8	97.0	20.1	1.000011

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

UPPER AIR DATA
0313C03901
WHITE SANDS SITE

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

STATION ALTITUDE 3989.0 FEET MSL
5 SEPT. 68 0815 HRS MDT
ASCENSION NO. 724

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
78500.0	31.8	-51.1	0.	-0.	49.9	580.3	98.8	20.4	1.000011
79000.0	31.1	-50.7	0.	-0.	48.6	580.7	100.3	20.7	1.000011
79500.0	30.3	-50.4	0.	-0.	47.5	581.2	99.3	20.3	1.000011
80000.0	29.7	-50.0	0.	-0.	46.3	581.7	98.3	20.0	1.000010
80500.0	29.0	-49.7	0.	-0.	45.2	582.1	97.5	19.2	1.000010
81000.0	28.3	-49.3	0.	-0.	44.1	582.6	96.8	18.1	1.000010
81500.0	27.7	-49.0	0.	-0.	43.0	583.0	96.2	17.1	1.000010
82000.0	27.0	-48.6	0.	-0.	41.9	583.5	97.3	17.6	1.000009
82500.0	26.4	-48.3	0.	-0.	40.9	583.9	98.5	18.0	1.000009
83000.0	25.8	-47.9	0.	-0.	39.9	584.4	99.6	18.2	1.000009
83500.0	25.2	-47.6	0.	-0.	39.0	584.8	100.6	18.0	1.000009
84000.0	24.6	-47.2	0.	-0.	38.0	585.3	101.6	17.8	1.000008
84500.0	24.1	-46.9	0.	-0.	37.1	585.7	99.4	17.5	1.000008
85000.0	23.5	-46.5	0.	-0.	36.2	586.2	96.9	17.2	1.000008
85500.0	23.0	-46.2	0.	-0.	35.3	586.6	94.0	17.2	1.000008
86000.0	22.5	-45.8	0.	-0.	34.4	587.1	90.5	17.7	1.000008
86500.0	22.0	-45.5	0.	-0.	33.6	587.5	87.0	18.2	1.000007
87000.0	21.4	-45.1	0.	-0.	32.8	588.0	84.2	19.5	1.000007
87500.0	21.0	-44.8	0.	-0.	32.0	588.4	81.6	21.1	1.000007
88000.0	20.5	-44.9	0.	-0.	31.3	588.3	79.2	22.7	1.000007
88500.0	20.0	-44.9	0.	-0.	30.6	588.2	77.8	24.0	1.000007
89000.0	19.6	-45.0	0.	-0.	29.9	588.1	76.5	25.4	1.000007
89500.0	19.1	-45.1	0.	-0.	29.2	588.0	75.6	26.1	1.000007
90000.0	18.7	-45.1	0.	-0.	28.6	588.0	75.0	26.4	1.000006
90500.0	18.3	-45.2	0.	-0.	28.0	587.9	74.5	26.6	1.000006
91000.0	17.9	-45.3	0.	-0.	27.4	587.8	75.9	26.4	1.000006
91500.0	17.5	-45.3	0.	-0.	26.7	587.7	77.4	26.2	1.000006
92000.0	17.1	-45.4	0.	-0.	26.2	587.6	78.8	25.8	1.000006
92500.0	16.7	-45.5	0.	-0.	25.6	587.5	80.2	24.9	1.000006
93000.0	16.3	-45.5	0.	-0.	25.0	587.4	81.5	24.0	1.000006

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

STATION ALTITUDE 3989.0 FEET MSL
 5 SEPT. 68 0815 HRS MDT
 ASCENSION NO. 724

UPPER AIR DATA
 0313003901
 WHITE SANDS SITE

WSTM SITE COORDINATES
 E 488,580 FEET
 N 185,745 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	DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
93500.0	16.0	-45.6	-0.	24.5	587.4	81.3	23.1	1.000005
94000.0	15.6	-45.3	-0.	23.9	587.7	80.3	22.3	1.000005
94500.0	15.3	-45.0	-0.	23.3	588.1	79.3	21.6	1.000005
95000.0	14.9	-44.8	-0.	22.8	588.4	78.4	22.4	1.000005
95500.0	14.6	-44.5	-0.	22.3	588.8	77.5	23.3	1.000005
96000.0	14.3	-44.2	-0.	21.7	589.1	76.7	24.1	1.000005
96500.0	14.0	-44.0	-0.	21.2	589.5	77.3	25.1	1.000005
97000.0	13.7	-43.7	-0.	20.7	589.8	78.0	26.1	1.000005
97500.0	13.4	-43.4	-0.	20.3	590.1	78.6	27.1	1.000005
98000.0	13.1	-43.2	-0.	19.8	590.5	79.5	27.9	1.000004
98500.0	12.8	-42.9	-0.	19.3	590.8	80.8	28.6	1.000004
99000.0	12.5	-42.6	-0.	18.9	591.2	82.1	29.2	1.000004
99500.0	12.2	-42.4	-0.	18.4	591.5	83.4	29.9	1.000004
100000.0	11.9	-42.1	-0.	18.0	591.8	84.4	30.5	1.000004
100500.0	11.7	-41.8	-0.	17.6	592.2	85.1	31.2	1.000004
101000.0	11.4	-41.6	-0.	17.2	592.5	85.8	31.9	1.000004
101500.0	11.2	-41.3	-0.	16.8	592.9	86.5	32.5	1.000004
102000.0	10.9	-41.0	-0.	16.4	593.2	87.9	32.6	1.000004
102500.0	10.7	-40.8	-0.	16.0	593.6	89.4	32.4	1.000004
103000.0	10.4	-40.5	-0.	15.6	593.9	90.9	32.3	1.000002
103500.0	10.2	-40.2	-0.	15.3	594.2	92.4	32.1	1.000003
104000.0	10.0	-40.0	-0.	14.9	594.6	94.1	32.6	1.000002
104500.0	9.8	-39.8	-0.	14.6	594.8	95.8	33.2	1.000003
105000.0	9.6	-39.6	-0.	14.3	595.0	97.6	33.7	1.000003
105500.0	9.3	-39.5	-0.	13.9	595.2	99.3	34.2	1.000003
106000.0	9.1	-39.3	-0.	13.6	595.5	100.9	34.0	1.000003
106500.0	8.9	-39.1	-0.	13.3	595.7	102.5	33.8	1.000003
107000.0	8.8	-38.9	-0.	13.0	595.8	104.0	33.5	1.000003
107500.0	8.6	-38.7	-0.	12.7	596.2	105.5	33.5	1.000003
108000.0	8.4	-38.6	-0.	12.4	596.4	106.2	34.6	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. 724
 0815 HRS MDT

UPPER AIR DATA
 0313003901
 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		WIND DATA DIRECTION (TN) DEGREES	SPEED KNOTS	INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS			
108500.0	8.2	-38.4	0.	-0. **	12.2	596.6	106.9	35.7	1.000003	
109000.0	8.0	-38.2	0.	-0. **	11.9	596.8	107.6	36.8	1.000003	
109500.0	7.8	-38.0	0.	-0. **	11.6	597.1	108.1	37.4	1.000003	
110000.0	7.7	-37.8	0.	-0. **	11.4	597.3	107.9	36.6	1.000003	
110500.0	7.5	-37.7	0.	-0. **	11.1	597.5	107.7	35.8	1.000002	
111000.0	7.3	-37.5	0.	-0. **	10.9	597.7	107.5	35.0	1.000002	
111500.0	7.2	-37.3	0.	-0. **	10.6	598.0	107.3	34.6	1.000002	
112000.0	7.0	-37.1	0.	-0. **	10.4	598.2	107.2	34.8	1.000002	
112500.0	6.9	-36.6	0.	-0. **	10.1	598.8	107.1	35.0	1.000002	
113000.0	6.7	-36.1	0.	-0. **	9.9	599.5	107.0	35.2	1.000002	
113500.0	6.6	-35.5	0.	-0. **	9.7	600.2	106.7	35.1	1.000002	
114000.0	6.4	-35.0	0.	-0. **	9.4	600.9	106.0	34.7	1.000002	
114500.0	6.3	-34.4	0.	-0. **	9.2	601.7	105.3	34.2	1.000002	
115000.0	6.2	-33.8	0.	-0. **	9.0	602.4	104.6	33.8	1.000002	
115500.0	6.0	-33.3	0.	-0. **	8.8	603.1	103.6	33.7	1.000002	
116000.0	5.9	-33.2	0.	-0. **	8.6	603.2	102.1	34.0	1.000002	
116500.0	5.8	-33.3	0.	-0. **	8.4	603.1	100.7	34.3	1.000002	
117000.0	5.7	-33.4	0.	-0. **	8.2	602.9	99.3	34.6	1.000002	
117500.0	5.5	-33.5	0.	-0. **	8.1	602.8	99.0	35.0	1.000002	
118000.0	5.4	-33.6	0.	-0. **	7.9	602.7	100.2	35.5	1.000002	
118500.0	5.3	-33.7	0.	-0. **	7.7	602.6	101.4	35.5	1.000002	
119000.0	5.2	-33.8	0.	-0. **	7.6	602.4	102.7	35.8	1.000002	
119500.0	5.1	-33.9	0.	-0. **	7.4	602.3	101.5	35.9	1.000002	
120000.0	5.0	-34.0	0.	-0. **	7.2	602.2	97.2	35.6	1.000002	
120500.0	4.9	-34.1	0.	-0. **	7.1	602.1	93.0	35.3	1.000002	
121000.0	4.8	-34.2	0.	-0. **	7.0	601.9	88.7	35.0	1.000002	
121500.0	4.7	-34.3	0.	-0. **	6.8	601.8			1.000002	
122000.0	4.6	-34.4	0.	-0. **	6.7	601.7			1.000001	
122500.0	4.5	-34.5	0.	-0. **	6.5	601.6			1.000001	
123000.0	4.4	-34.6	0.	-0. **	6.4	601.4			1.000001	

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

STATION ALTITUDE 3989.0 FEET MSL
 5 SEPT. 68
 ASCENSION NO. 724
 0815 HRS MDT

UPPER AIR DATA
 0313003901
 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(TM)	SPEED KNOTS	
123500.0	4.3	-34.7	0.	-0. **	6.3	601.3			1.000001
124000.0	4.2	-34.8	0.	-0. **	6.1	601.2			1.000001
124500.0	4.1	-34.9	0.	-0. **	6.0	601.1			1.000001
125000.0	4.0	-35.0	0.	-0. **	5.9	600.9			1.000001
125500.0	3.9	-35.1	0.	-0. **	5.7	600.8			1.000001

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

STATION ALTITUDE 3969.0 FEET MSL
 5 SEPT. 68
 ASCENSION NO. 724

MANDATORY LEVELS
 0313003901
 WHITE SANDS SITE

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

TABLE XI

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	5080.	17.4	8.5	56.	65.4	5.6
800.0	6774.	14.7	8.8	68.	147.5	10.9
750.0	8558.	13.2	4.4	55.	191.7	9.7
700.0	10458.	10.7	-4.7	34.	232.9	8.2
650.0	12464.	5.2	-6.6	42.	263.6	4.8
600.0	14586.	-0.8	-9.3	53.	302.3	4.5
550.0	16847.	-3.6	-25.0	16.	343.3	9.3
500.0	19296.	-8.6	-29.4	17.	329.8	11.9
450.0	21954.	-13.7	-34.3	16.	325.7	12.5
400.0	24850.	-21.0	-40.3	16.	319.0	17.8
350.0	28037.	-28.7	-46.0	17.	309.9	20.7
300.0	31594.	-37.4	-55.8	13.**	286.0	22.2
250.0	35635.	-47.6	-81.0	1.**	272.3	32.1
200.0	40380.	-55.9	0.	-0.**	265.9	37.4
175.0	43138.	-60.6	0.	-0.**	266.6	35.5
150.0	46264.	-63.2	0.	-0.**	254.8	32.1
125.0	49929.	-65.3	0.	-0.**	275.4	20.8
100.0	54383.	-64.6	0.	-0.**	290.0	14.3
80.0	58904.	-62.7	0.	-0.**	230.0	12.5
70.0	61631.	-58.1	0.	-0.**	182.1	6.3
60.0	64818.	-58.0	0.	-0.**	110.7	6.4
50.0	68589.	-57.8	0.	-0.**	70.7	13.3
40.0	73253.	-54.5	0.	-0.**	65.6	12.7
30.0	79357.	-50.2	0.	-0.**	99.0	20.2
25.0	83287.	-47.4	0.	-0.**	100.9	18.0
20.0	88162.	-44.9	0.	-0.**	77.7	24.1
15.0	94462.	-44.8	0.	-0.**	78.6	22.2
10.0	103452.	-40.0	0.	-0.**	94.0	32.6
7.0	111493.	-37.1	0.	-0.**	107.2	34.8
5.0	119218.	-33.9	0.	-0.**	98.1	35.6

** 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	
	RAWIN- SONDE	FIBAL	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W		N-S	E-W	RANGE	N-S	E-W
0530	0630	1.6S	2.3W	9.0S	7.5E	3.53	18.6W	14.1S	13.4W	64.7	64.6N	4.4W				
0530	0700	1.8S	2.1W	7.6S	6.9E	3.5S	18.6W	12.9S	13.8W	65.9	65.8N	4.8W				
0530	0715	1.4S	2.9W	7.3S	7.4E	3.5S	18.6W	12.2S	14.1W	66.7	66.5N	5.1W				
0530	0730	2.2S	2.3W	8.8S	7.6E	3.5S	18.6W	14.5S	13.3W	64.3	64.2N	4.3W				
0530	0740	0.7S	1.8W	9.1S	8.9E	3.5S	18.6W	13.3S	11.5W	65.4	65.4N	2.5W				
0530	0750	1.7S	2.1W	7.4S	7.5E	3.5S	18.6W	12.6S	13.2W	66.2	66.1N	4.2W				
0815*	0801*	1.8S	2.0W	7.8S	8.6E	1.2S	16.1W	10.2S	9.5W	68.5	68.5N	0.5W				

* 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)	010.0	79.9	78.9N	13.9E
NO WIND IMPACT	006.5	79.2	78.7N	9.0E
PREDICTED SECOND-STAGE IMPACT	357.0	70.0	69.9N	3.7W
SECOND-STAGE IMPACT, SOTIM**	354.8	70.9	70.6N	6.4W
PREDICTED BOOSTER IMPACT	040.0	1.2	0.9N	0.8E
ACTUAL BOOSTER IMPACT	N/A	N/A	N/A	N/A

TABLE XII. IMPACT PREDICTION DATA
NIKS-HYDAC STV, SR-074

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Security Classification

DOCUMENT CONTROL DATA - R & D .

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

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13. ABSTRACT → Meteorological data gathered for the launching of Nike-Hydac STV, SR-074, 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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1. Ballistics						
2. Meteorology						
3. Wind						

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