

DOCKET NO. **SA - 510**

EXHIBIT NO. **13X - Q**

**NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.**

Wake Vortex Flight Test Meteorological Data

NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering
Washington, D.C.

November 8, 1995

Wake Vortex Flight Test Meteorological Data

A. ACCIDENT DCA-94-MA-076

Location : Aliquippa, Pennsylvania
Date : September 8, 1994
Time : 1904 Eastern Daylight Time
Aircraft : Boeing 737-300, N513AU

B. GROUP IDENTIFICATION

The Aircraft Performance Group met at the Federal Aviation Administration's (FAA) Technical Center facility at Atlantic City, New Jersey on September 25, through October 1, 1995 to participate in wake vortex flight tests. The following group members participated:

Chairman : Thomas R. Jacky, NTSB
Member : Bob McCullough, USAir
Member : Keakini Kaulia, ALPA
Member : James Kerrigan, Boeing

Additionally, the following persons participated in this phase of the investigative effort:

Marty Ingham, Boeing
Jim Wilborn, Boeing
Sarah Lewis, Boeing
Jim Skeen, NTSB

C. SUMMARY

On September 8, 1994 at 1904 Eastern Daylight Time, USAir Flight 427, a Boeing 737-3B7, N513AU, crashed while maneuvering to land at Pittsburgh International Airport, Pittsburgh, Pennsylvania. The airplane was being operated on an instrument flight rules (IFR) flight plan under the provisions of Title 14, code of Federal Regulation (CFR), Part 121, on a regularly scheduled flight from Chicago O'Hare International Airport, Chicago, Illinois, to Pittsburgh. The airplane was destroyed by impact forces and fire near Aliquippa, Pennsylvania. All 132 persons on board the airplane were fatally injured.

D. DETAILS OF INVESTIGATION

The attached data represent information collected during the execution of the Wake Vortex Flight Tests. The flight test was accomplished at the Federal Aviation Administration (FAA) Technical Center in Atlantic City, New Jersey from September 25 through October 1, 1995. National Weather Service (NWS) personnel at stationed at the Technical Center, as well as NTSB personnel, collected the information daily while on-site. The data were received from the following National Weather Service (NWS) weather stations:

- 1) Dulles International Airport (denoted by the IAD designator);
- 2) Wallops Island, Virginia (denoted by the WAL designator);
- 3) Pittsburgh International Airport (denoted by the PIT designator);
- 4) Brookhaven, New York (denoted by the OKX designator);

The collected meteorological measurements were made daily at 0000 and 1200 Zulu (or Universal Coordinated Time), or 0700 and 1900 Eastern Daylight Time (EDT). Data were collected for each day of flight testing.

The data presented were measured by weather balloons released at each NWS site. Weather balloon data were not collected at the FAA's Technical Center. On-site NWS personnel indicated that the NWS station at the facility had stopped weather balloon data collection several weeks prior to the wake vortex flight test, due to budget reductions.

The following is a general listing of the data collected from each NWS station on a daily basis:

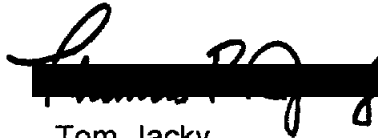
- 1) Skew T, Log P diagrams
- 2) Upper Air Radiosonde Information
 - a) Mandatory Levels
 - b) Significant Levels
 - c) Winds Aloft
- 3) National Weather Service (NWS) Forecast
- 4) Single-Station RAOB data, if available

The data are presented by day and time of the sounding; within each day and time, the data are presented by recording station. Generally, data from each station is presented together. Stations are identified by three-letter designator on each page.

As reference to the collected data, data taken from the day and approximate time of the accident are included in Attachment 2.

In addition to the meteorological data presented in this report, additional data were collected by the B-727, B-737, and National Aeronautics and Space

Administration (NASA) Langley Research Center's OV-10A airplanes that participated in the wake vortex flight test, and Aircraft Communications Addressing and Reporting System (ACARS) data taken from commercial airplanes passing the Atlantic City area during the testing. Data from these sources will be placed into the public docket at a later date.


Tom Jacky
Aerospace Engineer

Attachments

1. Collected Meteorological Information
 - a) Tuesday, September 26, 1995
 - b) Wednesday, September 27, 1995 (1200 Z)
 - c) Thursday, September 28, 1995 (0000 Z)
 - d) Thursday, September 28, 1995 (1200 Z)
 - e) Friday, September 29, 1995 (0000 Z)
 - f) Friday, September 29, 1995 (1200 Z)
 - g) Saturday, September 30, 1995 (1200 Z)
2. Reference Accident Data, September 8, 1994 (0000 Z)

ATTACHMENT 1

Collected Meteorological Information

Tuesday, September 26, 1995

SAO -- DONE
.FASTXT SFP NJ
FPUS1 KACY 261941
SFPNJ

95269 1943

NJZ015>026-271000-

STATE FORECAST FOR SOUTHERN NEW JERSEY

NATIONAL WEATHER SERVICE PHILADELPHIA PA/MOUNT HOLLY NJ

345 PM EDT TUE SEP 26 1995

.TONIGHT...OCCASIONAL RAIN...THEN BECOMING PARTLY CLOUDY AFTER
MIDNIGHT. LOWS 50 TO 60.

.WEDNESDAY...MOSTLY SUNNY. HIGHS IN THE 70S.

.WEDNESDAY NIGHT...MOSTLY CLEAR. LOWS 50 TO 60.

.THURSDAY...MOSTLY SUNNY. HIGHS IN THE MID TO UPPER 70S INLAND...AND
NEAR 70 AT THE SHORE.

.EXTENDED FORECAST...

.FRIDAY...FAIR. LOWS IN THE MID 40S TO LOW 50S AND HIGHS IN THE LOW
70S.

.SATURDAY...FAIR. LOWS IN THE UPPER 40S TO MID 50S AND HIGHS IN THE
LOW TO MID 70S.

.SUNDAY...FAIR. LOWS IN THE 50S AND HIGHS IN THE LOW TO MID 70S.

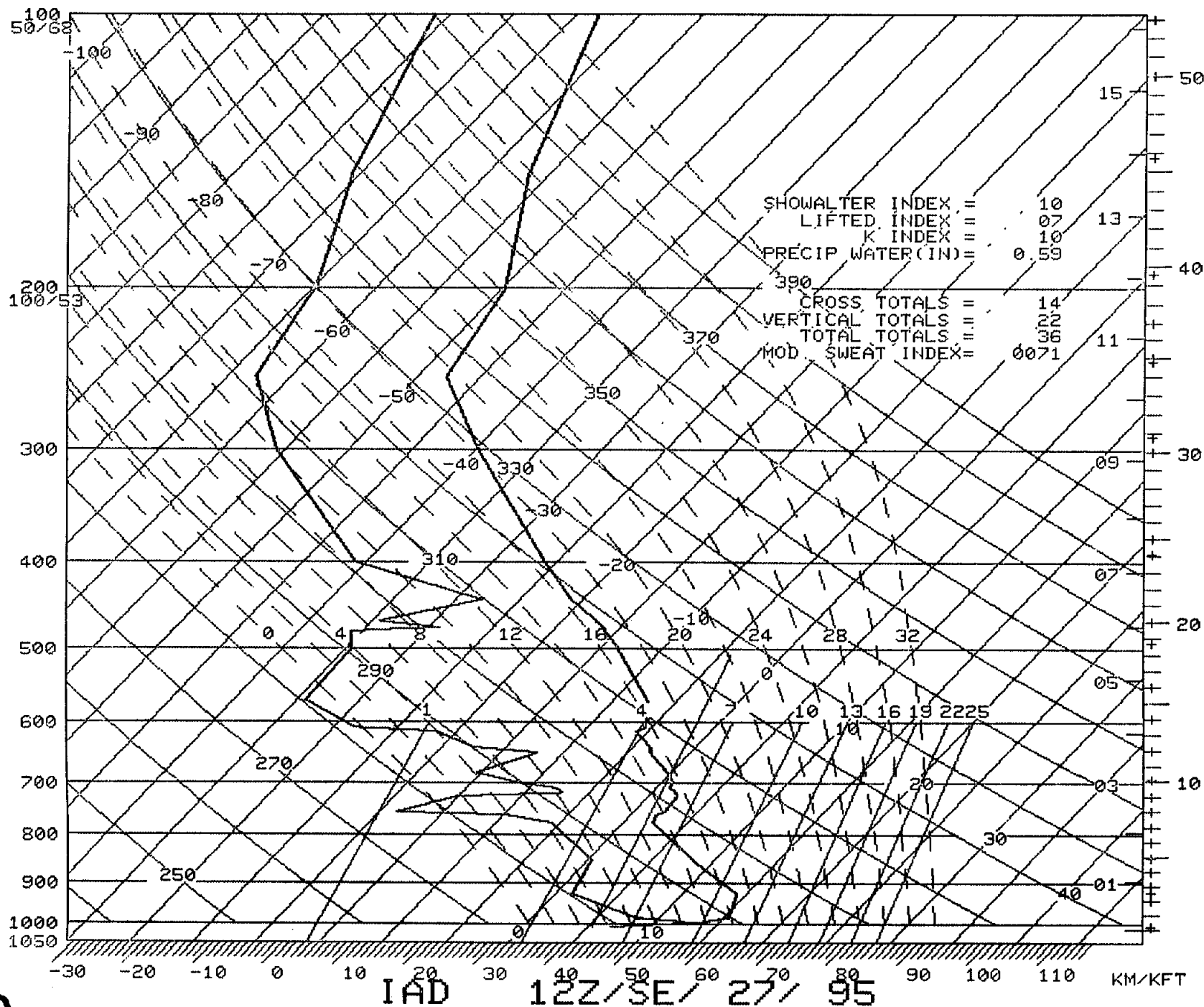
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IOVINO

-----015-----26 SEP 95269--201302-----0-----

Wednesday, September 27, 1995

1200 Z (UTC)



	265/ 67
	255/ 69
	250/ 75
	250/ 89
	250/ 86
	250/ 78
	+ 255/ 71
	+ 260/ 71
	+ 260/ 54
	+ 260/ 51
	+ 265/ 41
	270/ 39
	+ 270/ 32
	265/ 34
	+ 275/ 27
	285/ 22
	+ 290/ 16
	290/ 10
	+ 295/ 06
	310/ 06
	+ 330/ 07
	340/ 11
	+ 335/ 13
	+ 330/ 16
	+ 210/ 03

DIR/KTS DIR/KTS

IAD MODIFIED

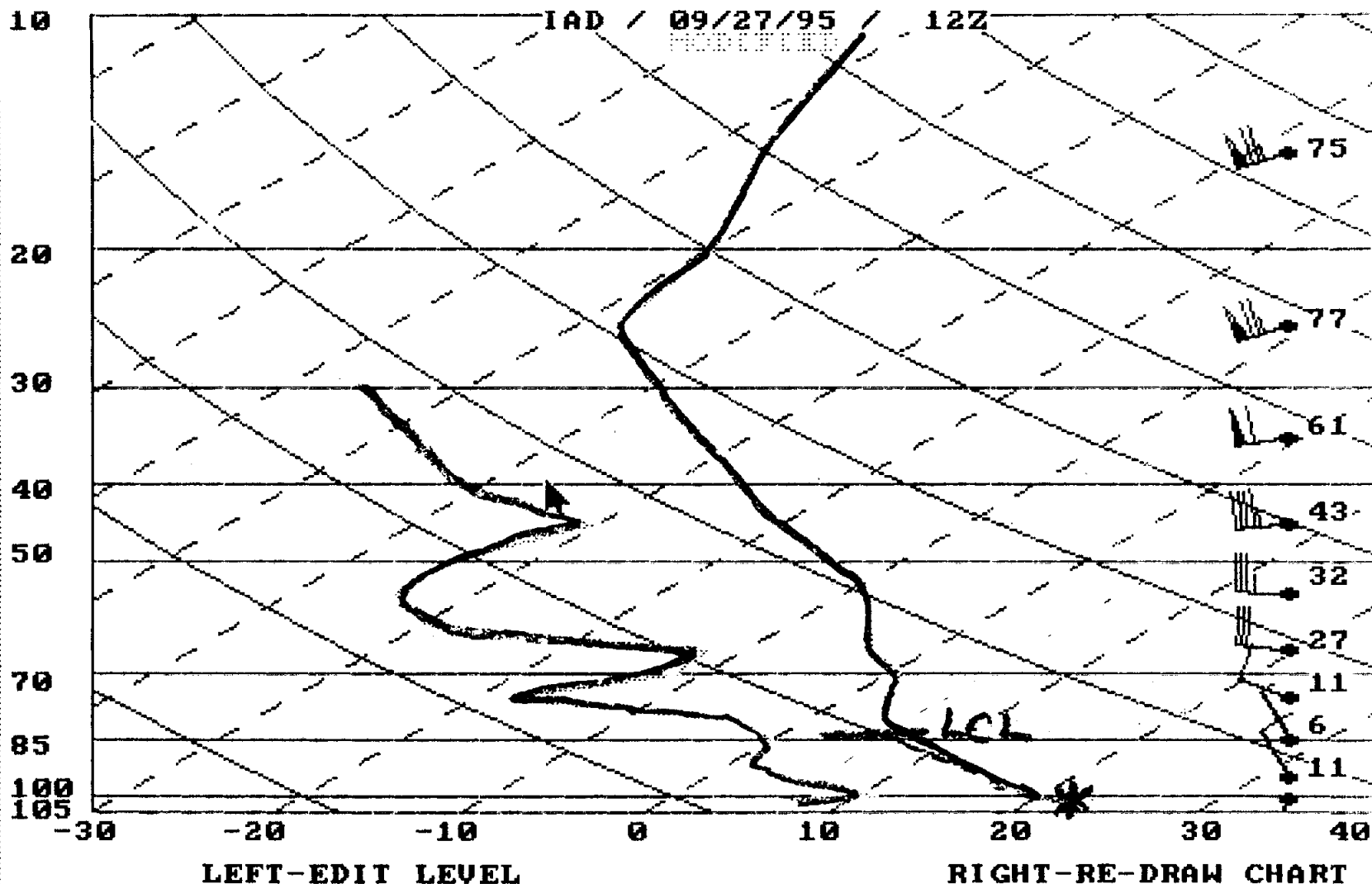
LI..... 8
 TT..... 36
 TEI..... 9.7
 R..... 10
 SWEAT... 53
 CAP..... 7.7

CURSOR DATA
 TIME: 09/27/95 12Z
 DATE: 09/27/95
 TIME: 12Z

RAOB DATA
 P..... 400
 Td..... -26.1
 Td..... -41.1
 Tdd..... 15.0
 Wind... 260/52

PARCEL DATA
 B+..... 0
 B-..... 0
 LPL... 1007mb
 EL... -999ft
 MPL... -999ft
 LCL... 5806ft
 FZL... 10066ft
 WBZ... 6826ft
 PW... 0.64in

RIGHT BUTTON
 FOR MENU



CONV TEMP

~75°C

*****CONVECTIVE INDICES*****

Lifted Index @ 500mb...	7	Cross Totals (CT).....	14
@ 300mb...	11	Vertical Totals (VT)....	22
		Total Totals.....	36
Shower Index.....	10	B+.....	0 J/kg
Sweat Index.....	53	B-.....	0 J/kg
TEI.....	5.2	Max UVV.....	0 m/s
K Index.....	10		
Precipitable Water.....	0.69 in	BRN.....	0
700-500mb Lapse Rate... 5.5 C/km		Energy/Helicity Index..	0.00

***** STORM ENVIRONMENT *****

STORM MOTION: 311/ 13

DEPTH AGL m	SHEAR			HELICITY					MEAN WIND	MEAN STORM	VORTICITY	
	Pos	Neg	Tot	Pos	Neg	Tot	Ave	Rel	Vector	Inflow	Horiz	Stream
	(10-3 s-1)			(m/s)^2			(m s-2)		(Dir/kt)	(Dir/kt)	(10-3 s-1)	
1000	6.6	0.9	7.5	1	-13	-12	-12.0	-0.35	324/ 7	114/ 6	10.80	-3.83
2000	3.4	2.7	6.2	14	-13	1	0.5	0.26	322/ 7	119/ 6	10.40	2.75
3000	2.3	4.4	6.7	32	-14	18	6.0	0.53	307/ 9	139/ 4	16.07	8.46
4000	1.8	4.4	6.2	32	-26	6	1.5	-0.04	292/12	197/ 4	10.79	-0.47
5000	1.8	3.1	4.9	44	-27	17	3.4	0.22	285/15	223/ 6	6.85	1.49
6000	1.4	3.5	4.9	52	-42	10	1.7	-0.03	281/17	234/ 9	7.98	-0.24

***** WIND DATA *****

HEIGHT AGL (m)	dir	GROUND RELATIVE				dir	STORM RELATIVE			
		speed		u-mag	v-mag		speed		u-mag	v-mag
		kt	m/s	m/s	m/s		kt	m/s	m/s	m/s
0.0	210.0	3.0	1.5	-0.8	-1.3	143.0	13.7	7.1	4.2	-5.6
402.0	327.0	12.0	6.2	-3.4	5.2	62.2	3.6	1.9	1.7	0.9
902.0	336.0	12.0	6.2	-2.5	5.6	62.0	5.5	2.8	2.5	1.3
1402.0	330.0	7.0	3.6	-1.8	3.1	110.3	6.7	3.4	3.2	-1.2
1902.0	301.0	6.0	3.1	-2.6	1.6	138.9	7.0	3.6	2.4	-2.7
2402.0	290.0	11.0	5.7	-5.3	1.9	187.2	4.6	2.4	-0.3	-2.4
2902.0	286.0	21.0	10.8	-10.4	3.0	256.1	10.7	5.5	-5.4	-1.3
3402.0	277.0	26.0	13.4	-13.3	1.6	252.0	16.9	8.7	-8.3	-2.7
3902.0	269.0	31.0	16.0	-16.0	-0.3	247.2	23.0	11.9	-10.9	-4.6
4402.0	267.0	33.0	17.0	-17.0	-0.9	246.5	25.3	13.0	-11.9	-5.2
4902.0	270.0	33.0	17.0	-17.0	0.0	250.2	24.7	12.7	-12.0	-4.3
5402.0	270.0	37.0	19.0	-19.0	0.0	252.9	28.5	14.7	-14.0	-4.3
5902.0	266.0	41.0	21.1	-21.1	-1.5	250.2	33.1	17.0	-16.0	-5.8
6402.0	263.0	44.0	22.7	-22.5	-2.8	248.0	36.6	18.8	-17.5	-7.1
6902.0	261.0	48.0	24.7	-24.4	-3.9	247.1	40.9	21.0	-19.4	-8.2
7402.0	260.0	53.0	27.3	-26.9	-4.7	247.5	45.9	23.6	-21.8	-9.0
7902.0	260.0	58.0	29.9	-29.4	-5.2	248.7	50.8	26.2	-24.4	-9.5
8402.0	260.0	64.0	32.9	-32.4	-5.7	249.9	56.7	29.2	-27.4	-10.0
8902.0	260.0	69.0	35.5	-35.0	-6.2	250.7	61.7	31.7	-30.0	-10.5

Single-Station RAOB data for: IAD

Date: 09/27/95 Time: 12 UTC

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*****THERMODYNAMIC DATA*****

LEVEL	PRES	HGT (AGL)		TEMP		DEWPT		TH-W	TH-E
	mb	ft	m	C	F	C	F	K	K
SFC	1007	0	0	6.6	43.9	6.6	43.9	279.4	296.2
LPL	995	272	83	11.5	52.8	11.2	52.2	284.7	309.7
LCL	968	1036	316	13.3	56.0	13.0	55.4	287.6	318.4
WBZ	782	6826	2081	3.4	38.1	-4.6	23.7	284.3	308.6
FZL	692	10066	3069	-0.0	32.0	-12.0	10.4	285.5	311.9
EL	-999	-999	-999	-999.0	-999.0	-999.0	-999.0	-999.0	-999.0
TROP	-999	-999	-999	-999.0	-999.0	-999.0	-999.0	-999.0	-999.0
MPL	-999	-999	-999	-999.0	-999.0	-999.0	-999.0	-999.0	-999.0

PRESSURE	HEIGHT	(AGL)	TEMP		DEWPT		TH-W	TH-E	WETB.	W
mb	ft	m	C	F	C	F	K	K	C	
1007	0	0	6.6	43.9	6.6	43.9	279.4	296.3	6.6	6.1
1000	134	41	11.2	52.2	10.9	51.6	284.1	308.1	11.0	8.3
950	1558	475	14.5	58.1	4.0	39.2	284.4	309.0	9.0	5.4
900	3044	928	12.1	53.8	0.7	33.3	284.3	308.4	6.4	4.5
850	4608	1405	8.0	46.4	0.0	32.0	284.5	309.2	4.1	4.5
800	6219	1896	4.1	39.4	-3.9	25.0	283.9	307.6	0.6	3.6
750	7938	2420	2.2	36.0	-18.2	-0.8	282.6	304.1	-4.3	1.2
700	9771	2979	0.6	33.1	-11.4	11.5	285.4	311.8	-4.0	2.3
650	11667	3557	-3.3	26.1	-12.3	9.9	286.1	313.8	-6.6	2.3
600	13714	4181	-6.1	21.0	-30.0	-22.0	285.5	312.1	-11.8	0.5
550	15938	4859	-9.1	15.6	-34.6	-30.3	286.8	315.6	-14.5	0.4
500	18375	5602	-13.7	7.3	-34.7	-30.5	287.8	318.7	-17.9	0.4
450	20946	6386	-19.8	-3.6	-30.4	-22.7	288.8	321.9	-22.0	0.7
400	23819	7262	-26.1	-15.0	-41.1	-42.0	289.0	322.9	-28.2	0.3
350	26909	8204	-32.5	-26.5	-48.0	-54.4	289.9	325.9	-34.1	0.1
300	30478	9292	-39.9	-39.8	-55.9	-68.6	291.0	329.8	-41.1	0.1
250	34479	10512	-47.9	-54.2	-999.0	-999.0	-999.0	-999.0	-999.0	-99.9
200	39268	11972	-49.9	-57.8	-999.0	-999.0	-999.0	-999.0	-999.0	-99.9
150	45336	13822	-56.7	-70.1	-999.0	-999.0	-999.0	-999.0	-999.0	-99.9
100	53667	16362	-63.3	-81.9	-999.0	-999.0	-999.0	-999.0	-999.0	-99.9

*****CONVECTIVE INDICES*****

Lifted Index @ 500mb...	6	Cross Totals (CT).....	6
@ 300mb...	11	Vertical Totals (VT)....	22
		Total Totals.....	28
Showalter Index.....	14	B+.....	0 J/kg
Sweat Index.....	78	B-.....	0 J/kg
TEI.....	13.2	Max UVV.....	0 m/s
K Index.....	-15		
Precipitable Water.....	0.52 in	BRN.....	0
700-500mb Lapse Rate... 5.1 C/km		Energy/Helicity Index..	0.00

***** STORM ENVIRONMENT *****

STORM MOTION: 301/ 18

DEPTH AGL m	SHEAR			HELICITY					MEAN WIND Vector (Dir/kt)	MEAN STORM Inflow (Dir/kt)	VORTICITY	
	Pos	Neg	Tot	Pos	Neg	Tot	Ave	Rel			Horiz	Stream
	(10-3 s-1)			(m/s) ²			(m s-2)				(10-3 s-1)	
1000	0.0	3.4	3.4	10	-42	-32	-32.0	0.70	346/ 9	94/13	49.27	34.68
2000	0.0	6.8	6.8	19	-42	-23	-11.5	0.92	319/10	101/ 9	94.50	87.07
3000	1.4	5.6	7.0	45	-42	3	1.0	0.52	295/14	140/ 5	50.93	26.54
4000	1.1	4.3	5.4	45	-78	-33	-8.3	-0.62	281/18	200/ 6	24.88	-15.37
5000	1.1	3.4	4.5	66	-78	-12	-2.4	0.57	275/21	216/ 9	13.66	7.72
6000	1.8	3.6	5.4	103	-78	25	4.2	0.27	271/24	225/12	29.30	7.99

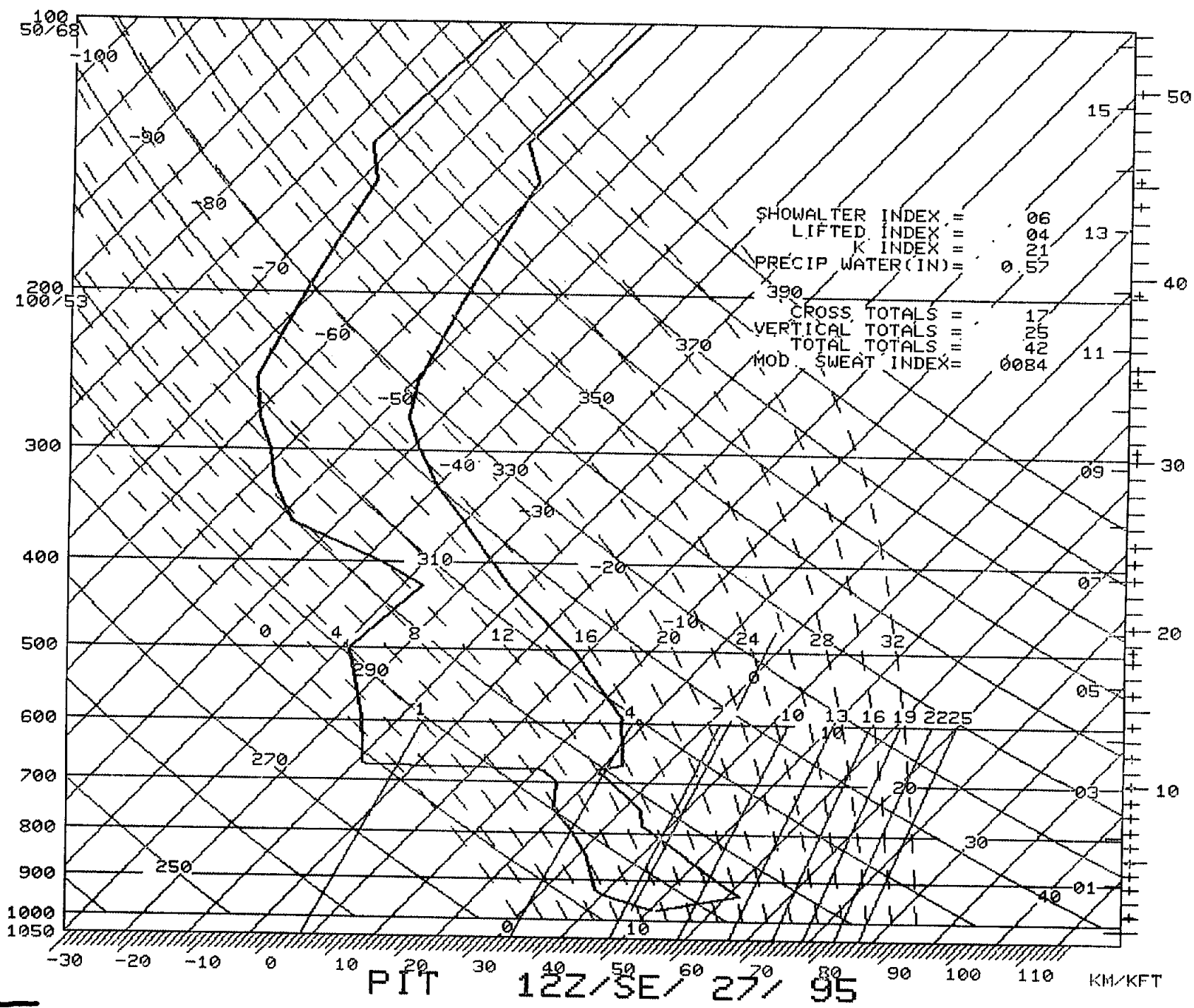
***** WIND DATA *****

HEIGHT AGL (m)	dir	GROUND RELATIVE				dir	STORM RELATIVE			
		speed	u-mag	v-mag			speed	u-mag	v-mag	
		kt	m/s	m/s	m/s		kt	m/s	m/s	m/s
0.0	350.0	2.0	1.0	-0.2	1.0	116.4	16.7	8.6	7.7	-3.8
486.0	349.0	14.0	7.2	-1.4	7.1	71.1	13.4	6.9	6.5	2.2
986.0	341.0	11.0	5.7	-1.8	5.4	85.2	11.8	6.1	6.1	0.5
1486.0	311.0	14.0	7.2	-5.4	4.7	92.6	4.8	2.5	2.5	-0.1
1986.0	282.0	19.0	9.8	-9.6	2.0	210.7	6.3	3.3	-1.7	-2.8
2486.0	270.0	25.0	12.9	-12.9	0.0	225.7	13.5	6.9	-5.0	-4.8
2986.0	270.0	33.0	17.0	-17.0	0.0	242.0	20.0	10.3	-9.1	-4.8
3486.0	263.0	41.0	21.1	-20.9	-2.6	240.4	29.2	15.0	-13.0	-7.4
3986.0	257.0	41.0	21.1	-20.6	-4.7	232.9	30.9	15.9	-12.7	-9.6
4486.0	257.0	42.0	21.6	-21.1	-4.9	233.6	31.8	16.4	-13.2	-9.7
4986.0	260.0	42.0	21.6	-21.3	-3.8	237.3	30.9	15.9	-13.4	-8.6
5486.0	260.0	46.0	23.7	-23.3	-4.1	239.9	34.6	17.8	-15.4	-9.0
5986.0	260.0	54.0	27.8	-27.4	-4.8	243.6	42.2	21.7	-19.5	-9.7
6486.0	257.0	59.0	30.4	-29.6	-6.8	241.7	47.9	24.6	-21.7	-11.7
6986.0	253.0	64.0	32.9	-31.5	-9.6	238.5	53.8	27.7	-23.6	-14.5
7486.0	250.0	68.0	35.0	-32.9	-12.0	236.1	58.5	30.1	-25.0	-16.8
7986.0	250.0	76.0	39.1	-36.8	-13.4	237.7	66.3	34.1	-28.9	-18.2
8486.0	250.0	84.0	43.2	-40.6	-14.8	239.0	74.1	38.2	-32.7	-19.6
8986.0	250.0	94.0	48.4	-45.5	-16.6	240.3	84.0	43.2	-37.6	-21.4

*****THERMODYNAMIC DATA*****

LEVEL	PRES mb	HGT (AGL) ft m	TEMP C F	DEWPT C F	TH-W K	TH-E K
SFC	1016	0 0	12.6 54.7	12.1 53.8	284.8	309.8
LPL	1000	426 130	14.4 57.9	14.2 57.6	287.4	317.7
LCL	997	508 155	14.4 58.0	14.2 57.6	287.6	318.2
WBZ	796	6658 2030	6.5 43.8	-14.0 6.9	283.0	304.9
FZL	646	12172 3711	-0.3 31.5	-30.3 -22.5	285.5	311.9
EL	-999	-999 -999	-999.0 -999.0	-999.0 -999.0	-999.0	-999.0
TROP	115	51171 15601	-62.5 -80.4	-999.0 -999.0	-999.0	-999.0
MPL	-999	-999 -999	-999.0 -999.0	-999.0 -999.0	-999.0	-999.0

PRESSURE mb	HEIGHT (AGL) ft m	TEMP C F	DEWPT C F	TH-W K	TH-E K	WETB. C	W
1016	0 0	12.6 54.7	12.1 53.8	284.8	309.8	12.3	8.8
1000	426 130	14.4 57.9	14.2 57.6	287.4	317.8	14.3	10.3
950	1847 563	14.8 58.6	-0.8 30.6	282.9	304.6	7.3	3.8
900	3339 1018	11.9 53.4	-3.4 25.9	282.9	304.9	5.0	3.3
850	4904 1495	9.2 48.6	-6.8 19.8	283.0	305.1	2.4	2.7
800	6524 1989	6.8 44.2	-13.7 7.3	282.9	304.9	-0.6	1.7
750	8252 2516	3.4 38.1	-26.6 -15.9	282.4	303.3	-4.7	0.6
700	10096 3078	1.0 33.8	-29.0 -20.2	283.4	306.2	-6.7	0.5
650	12011 3662	0.0 32.0	-30.0 -22.0	285.4	311.8	-7.8	0.5
600	14074 4291	-3.8 25.2	-33.8 -28.8	286.1	313.8	-10.8	0.4
550	16321 4976	-8.0 17.6	-38.0 -36.4	287.0	316.5	-14.1	0.3
500	18781 5726	-12.5 9.5	-42.5 -44.5	287.9	319.0	-17.7	0.2
450	21369 6515	-17.9 -0.2	-47.9 -54.2	288.6	321.6	-22.1	0.1
400	24259 7396	-23.9 -11.0	-53.9 -65.0	289.5	324.6	-27.2	0.1
350	27349 8338	-30.5 -22.9	-60.5 -76.9	290.5	328.0	-33.0	0.0
300	30917 9426	-38.1 -36.6	-68.1 -90.6	291.6	331.9	-39.8	0.0
250	34984 10666	-46.5 -51.7	-999.0 -999.0	-999.0	-999.0	-999.0	-99.9
200	39773 12126	-52.5 -62.5	-999.0 -999.0	-999.0	-999.0	-999.0	-99.9
150	45776 13956	-59.1 -74.4	-999.0 -999.0	-999.0	-999.0	-999.0	-99.9
100	54008 16466	-63.9 -83.0	-999.0 -999.0	-999.0	-999.0	-999.0	-99.9





TTAA00 KWAL 271213

72402 TTAA 77121 72402 99016 12605 35002 00144 14402 34510
92803 13265 35012 85509 09266 31014 70092 01080 27035 50574
12580 26050 40741 23980 25068 30944 38180 25103 25068 465//
24614 20214 525// 24615 15397 591// 26089 10648 639// 26043
88115 643// 25565
77211 24117 40711 51515 10164 00014 10194 34012 28023=

TTAA00 KWAL 271218

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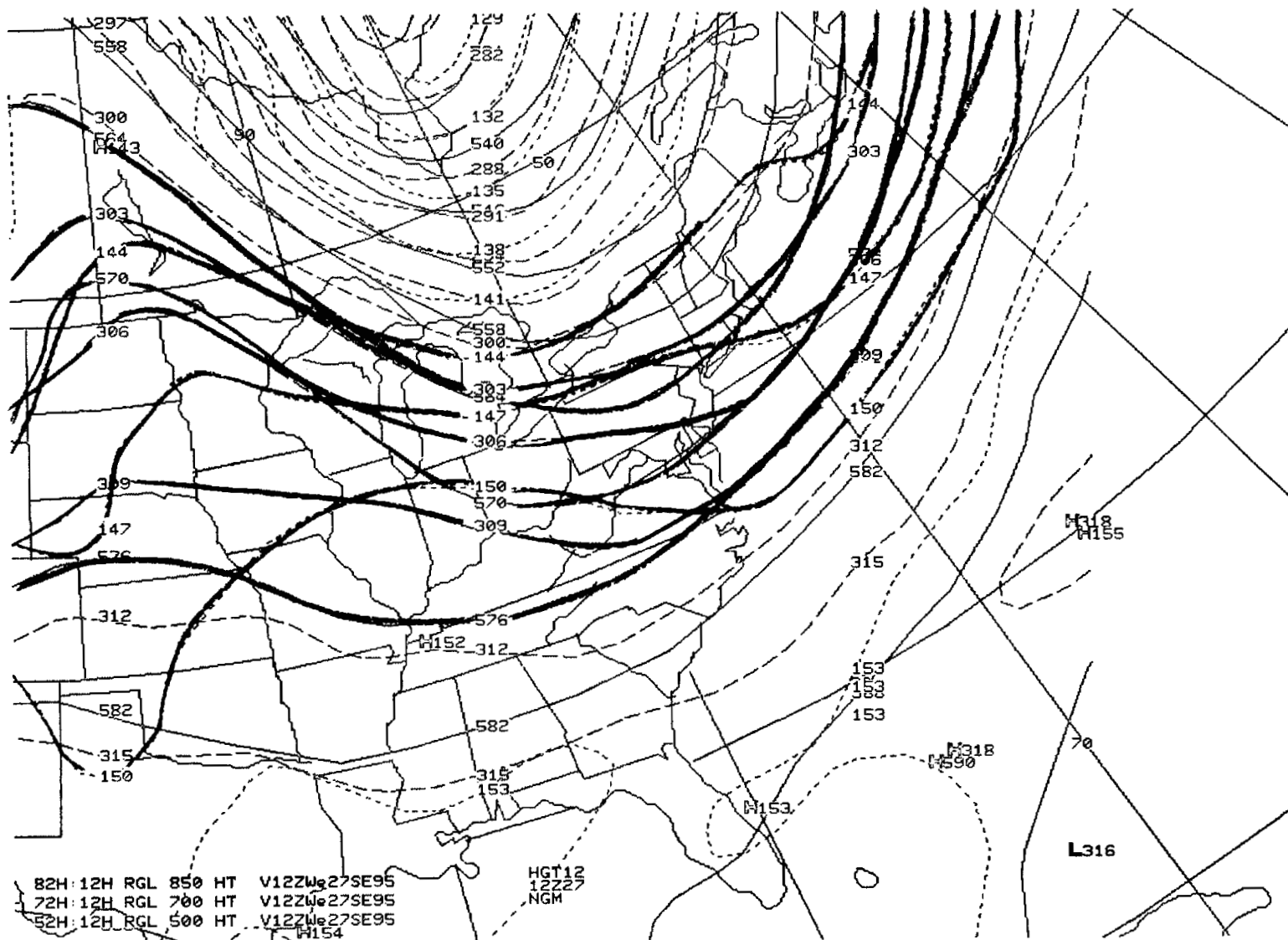
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92778 12457 31509 85481 07458 31516 70050 01558 28024 50566
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24592 20199 51363 24599 15384 57962 25584 10638 58362 25562
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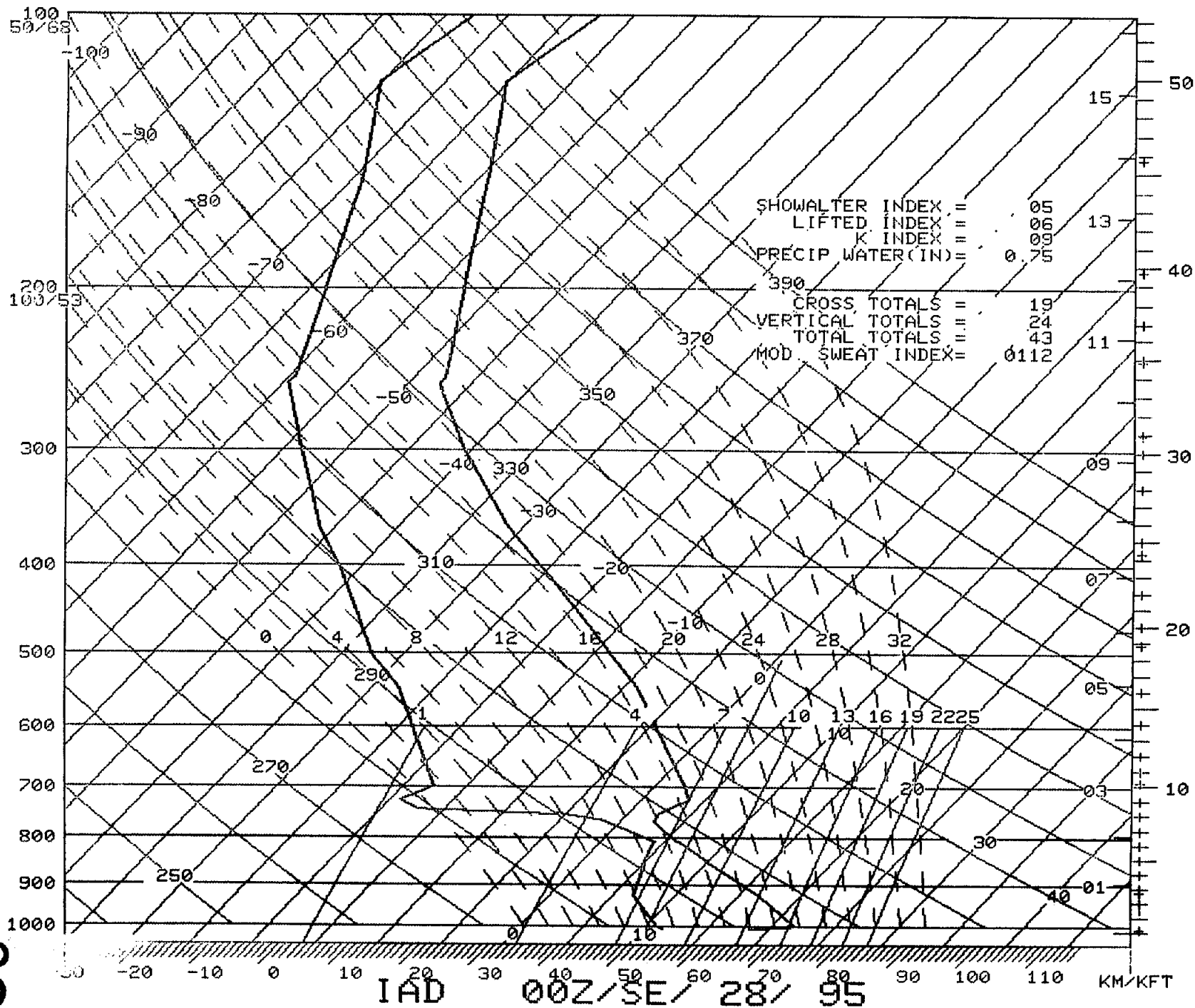
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~180



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 - 310/ 14
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 - 300/ 15
 - 280/ 13
 - 265/ 13
 - 255/ 14
 - 210/ 05
- DIR/KTS DIR/KTS

WDCMANIAD

TTA000 KIAD 380000

72403 TTA 78001 72403 99007 18257 21005 00142 21661 /////
02811 16460 26013 85523 09850 30015 70105 02270 31014 50575
15959 27526 40740 26166 27027 30942 40763 28517 25064 47762
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00110 65359 26046 77999 51515 10164 00006 10194 27513 32016=

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92025 27025 27030 27026 928// 27021 93015 28516 28517 27020
937// 26523 949// 25543 9503/ 26046 27036=

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WTCMANUAL

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11300	27036	40745	24164	25551	30940	39560	25576	25071	475//
24579	20217	521//	24572	15400	593//	25578	10649	639//	26541
89117	663//	26056							
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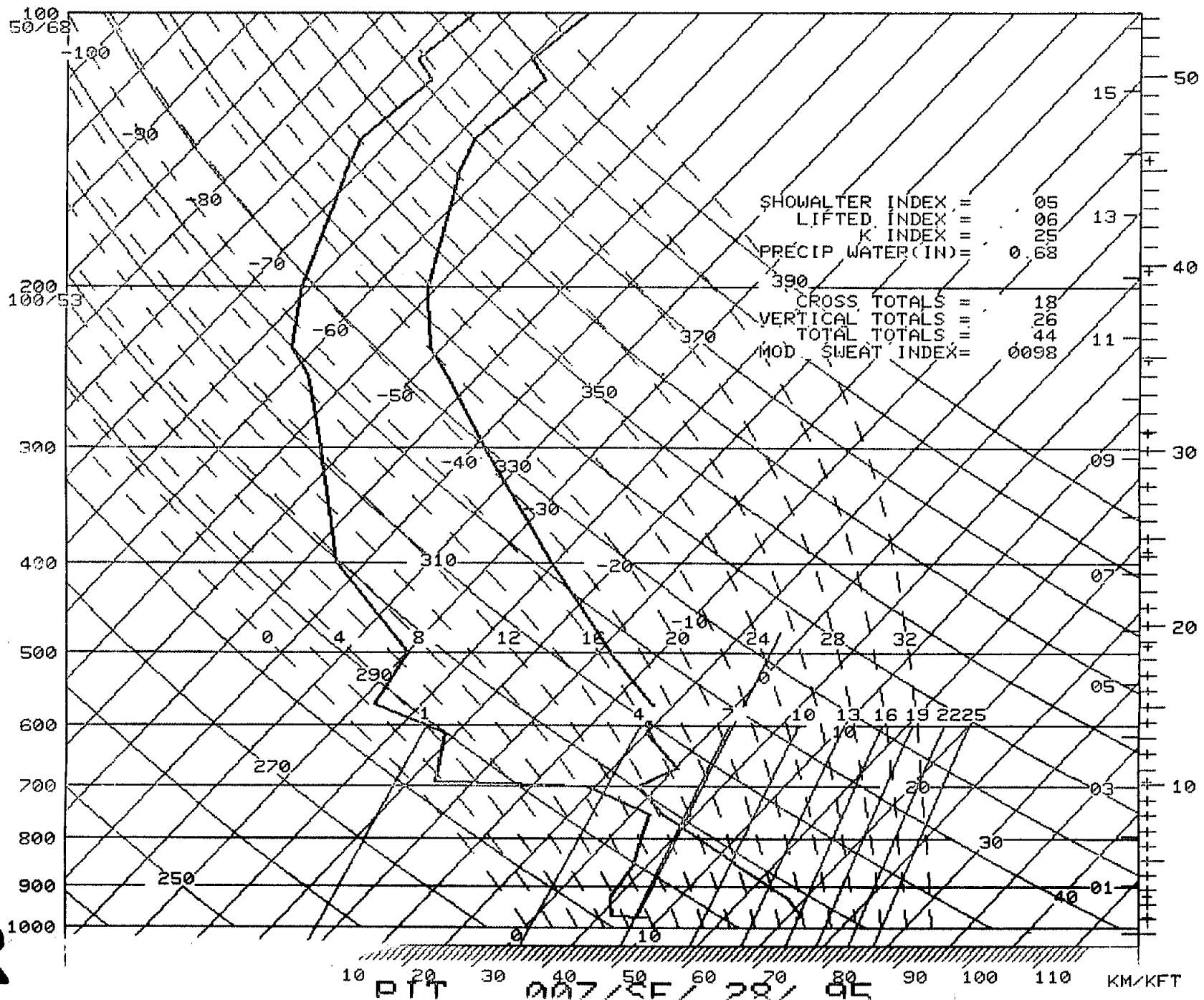
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88250	475//	99117	663//	11100	639//	31313	00999	82300=	

				30515	32507	90346	32005	30500	
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				28043	27038	25551	25553	9305/	26075
				2875	9534/	26070	26541=		

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- 330/ 23
- 335/ 18
- 335/ 16
- 305/ 15
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- 315/ 25
- 310/ 23
- 300/ 20
- 290/ 19
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- 270/ 18
- 260/ 17
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DIP/

PITMANPIT

TTAA00 KPIT 280000

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14166 32019 40739 25567 33516 30942 39363 34023 25064 47761
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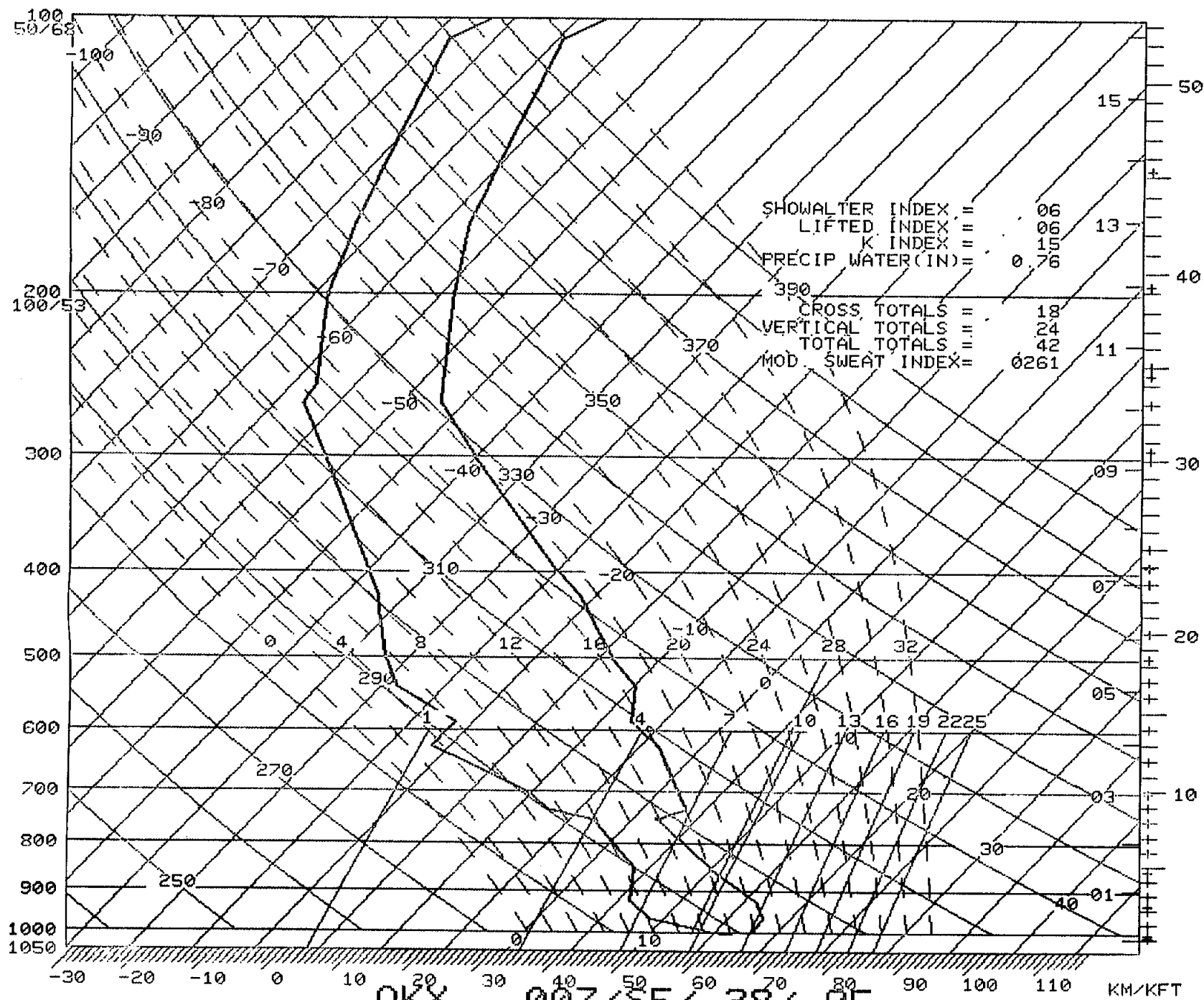
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33522 36028 20529 939// 36028 945// 28027 9504/ 28533 28030=

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DIR/KTS DIR/KTS

NYCMANOKX

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TTA000 KIAD 281200

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0012 34012 32510 91024 31512 32511 00504 916//
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01017 90709 36014 33012 32511 91246 27510 26510 26514 917//
25016 92012 20012 28513 27013 925// 20006 93024 03503 06511
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TTA000 KPIT 281200

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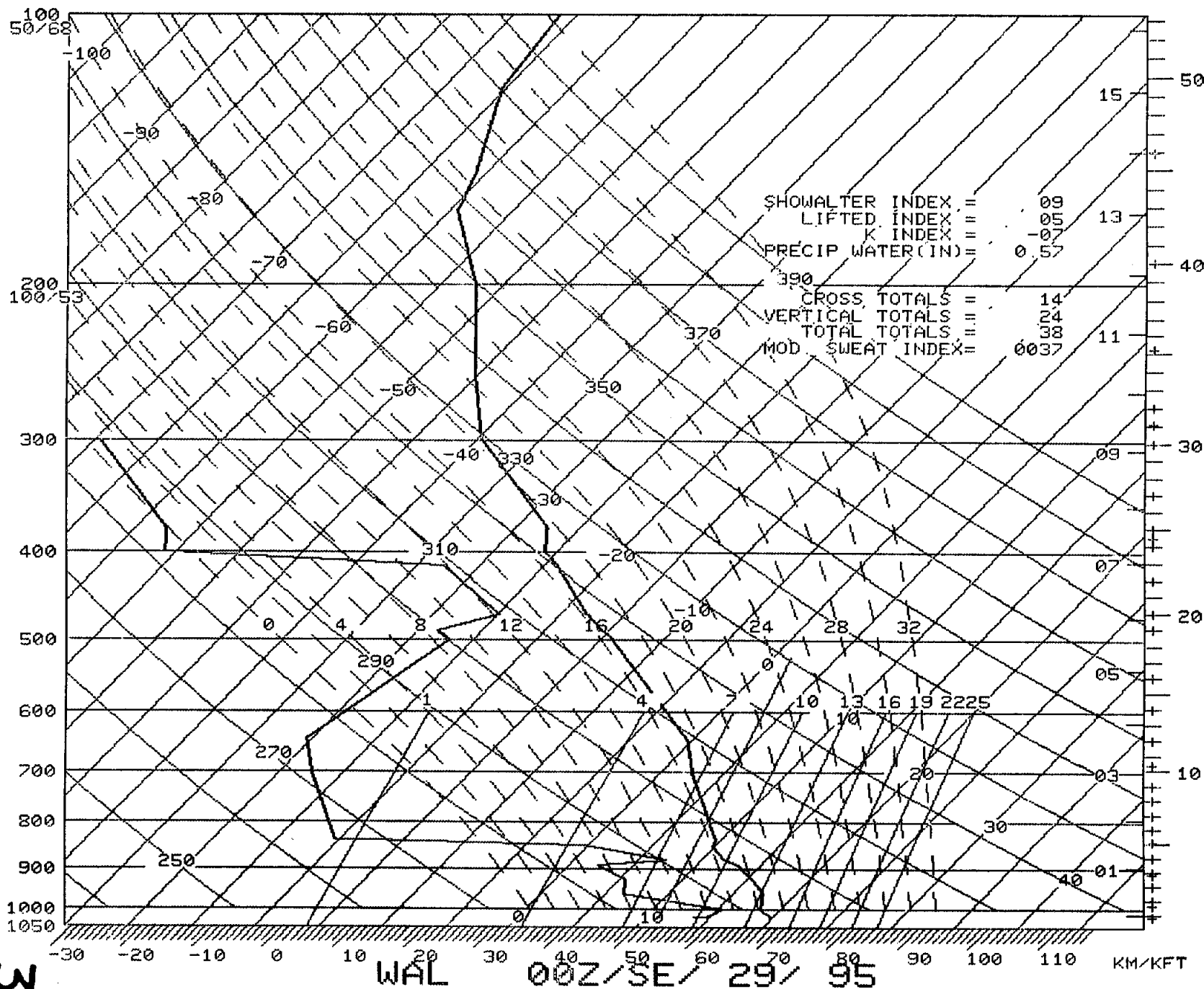
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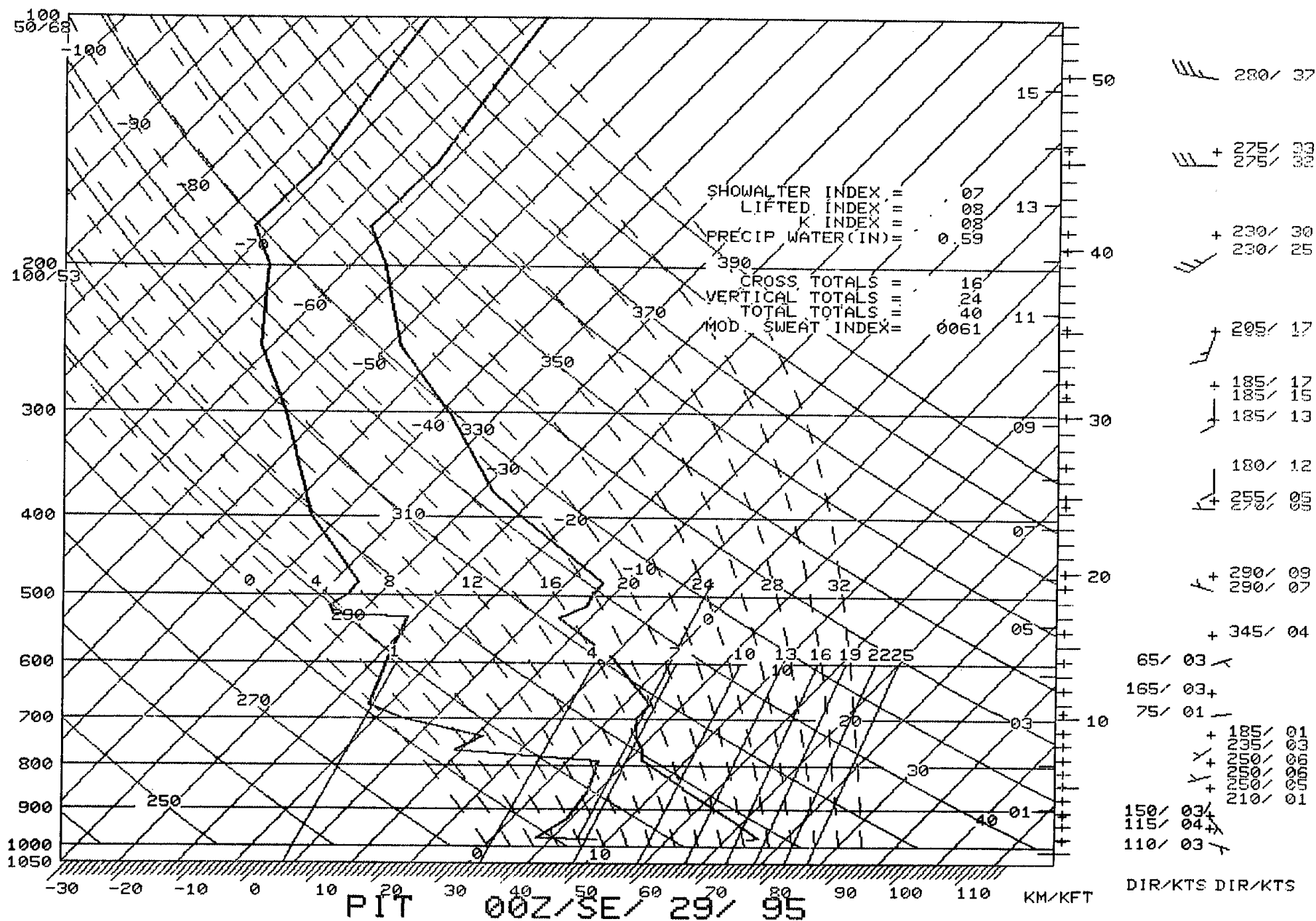
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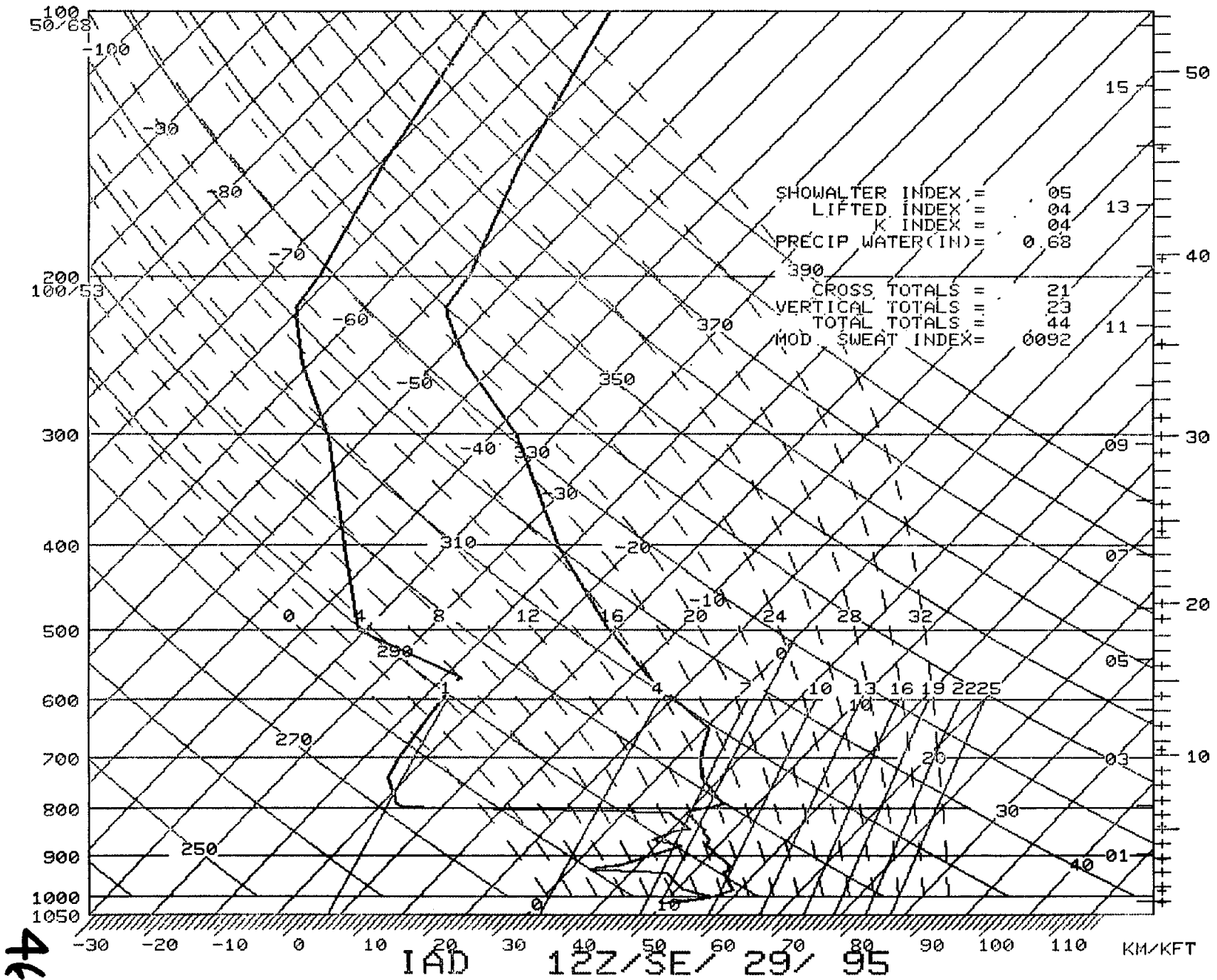
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 VERTICAL TOTALS = 23
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- 275/ 06
- 310/ 11
- 330/ 11
- 360/ 15
- 30/ 12
- 25/ 08
- 25/ 07
- 270/ 01
- + 195/ 02
- 80/ 05
- 80/ 06+
- 65/ 07
- 20/ 03+
- 65/ 05
- 60/ 08+
- 45/ 11
- 20/ 12
- 05/ 11
- 40/ 04
- 80/ 06
- 95/ 12
- 45/ 09
- 360/ 03

DIR/KTS DIR/KTS

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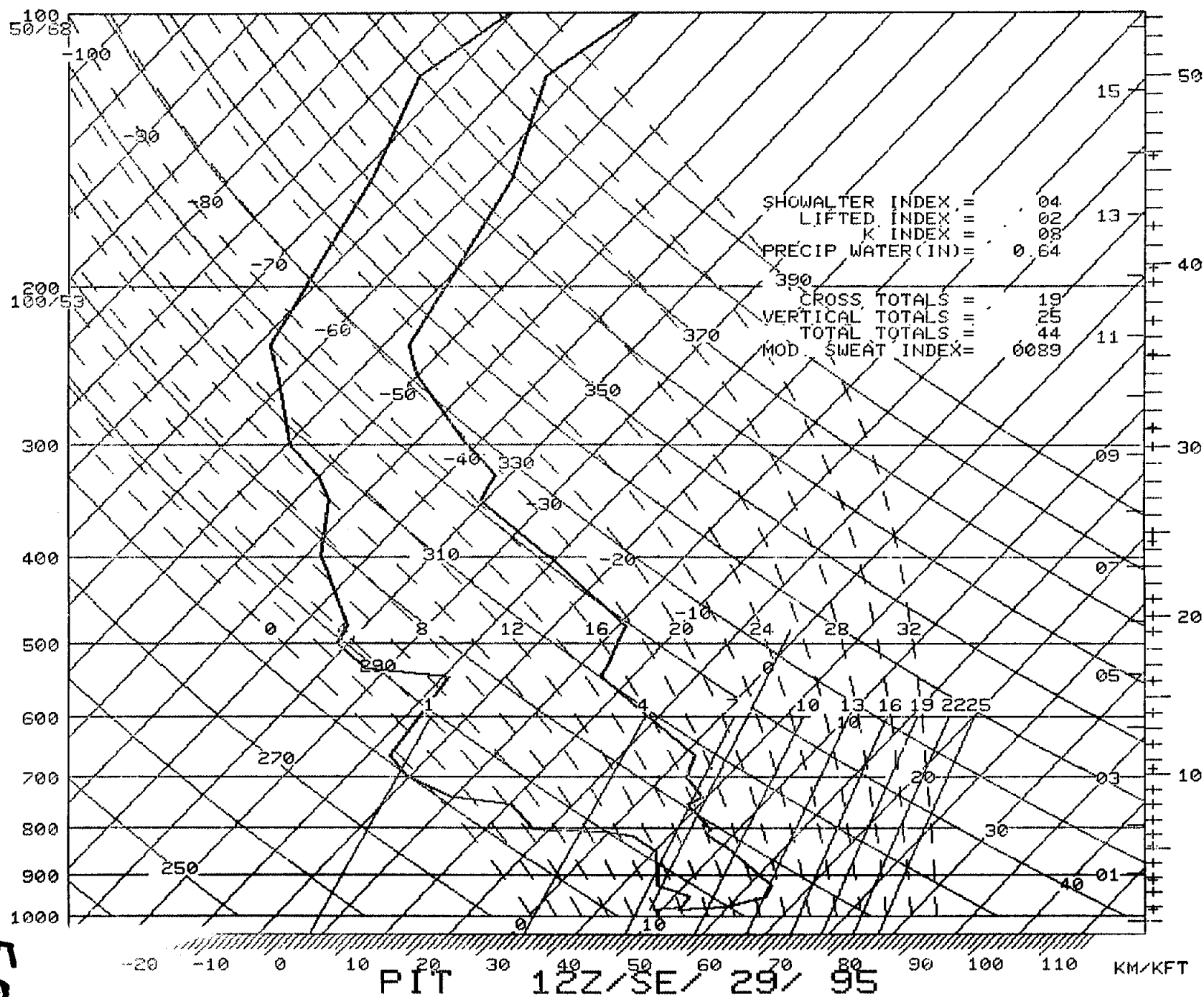
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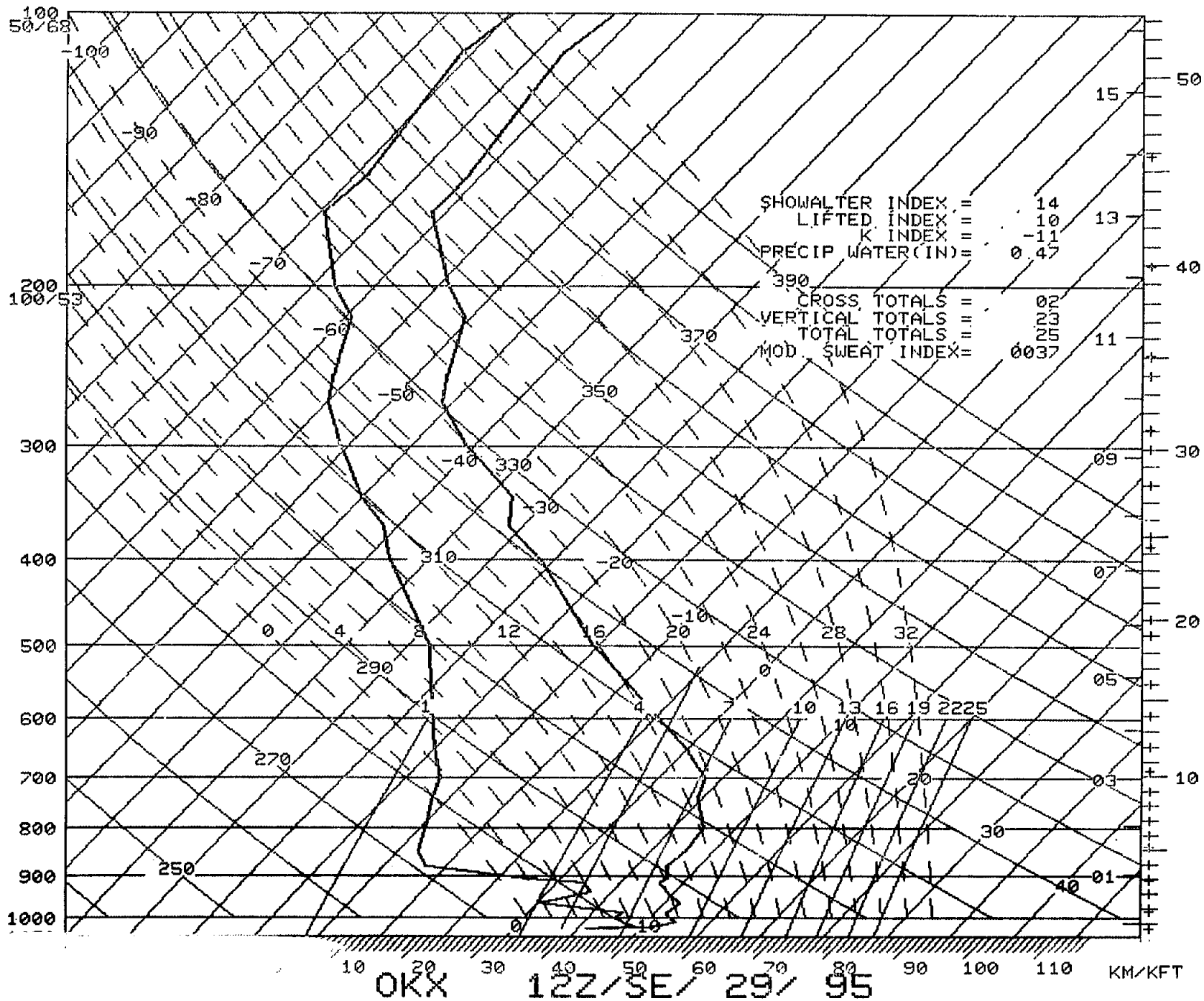
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 95/ 03
 90/ 02

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NYCSGLOKX

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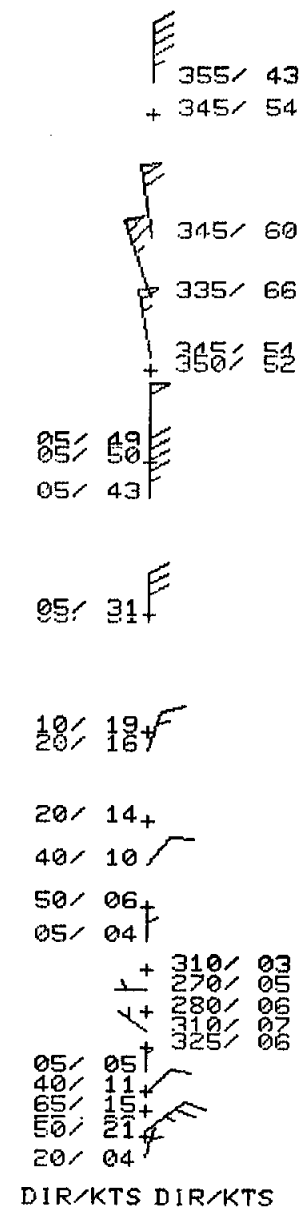
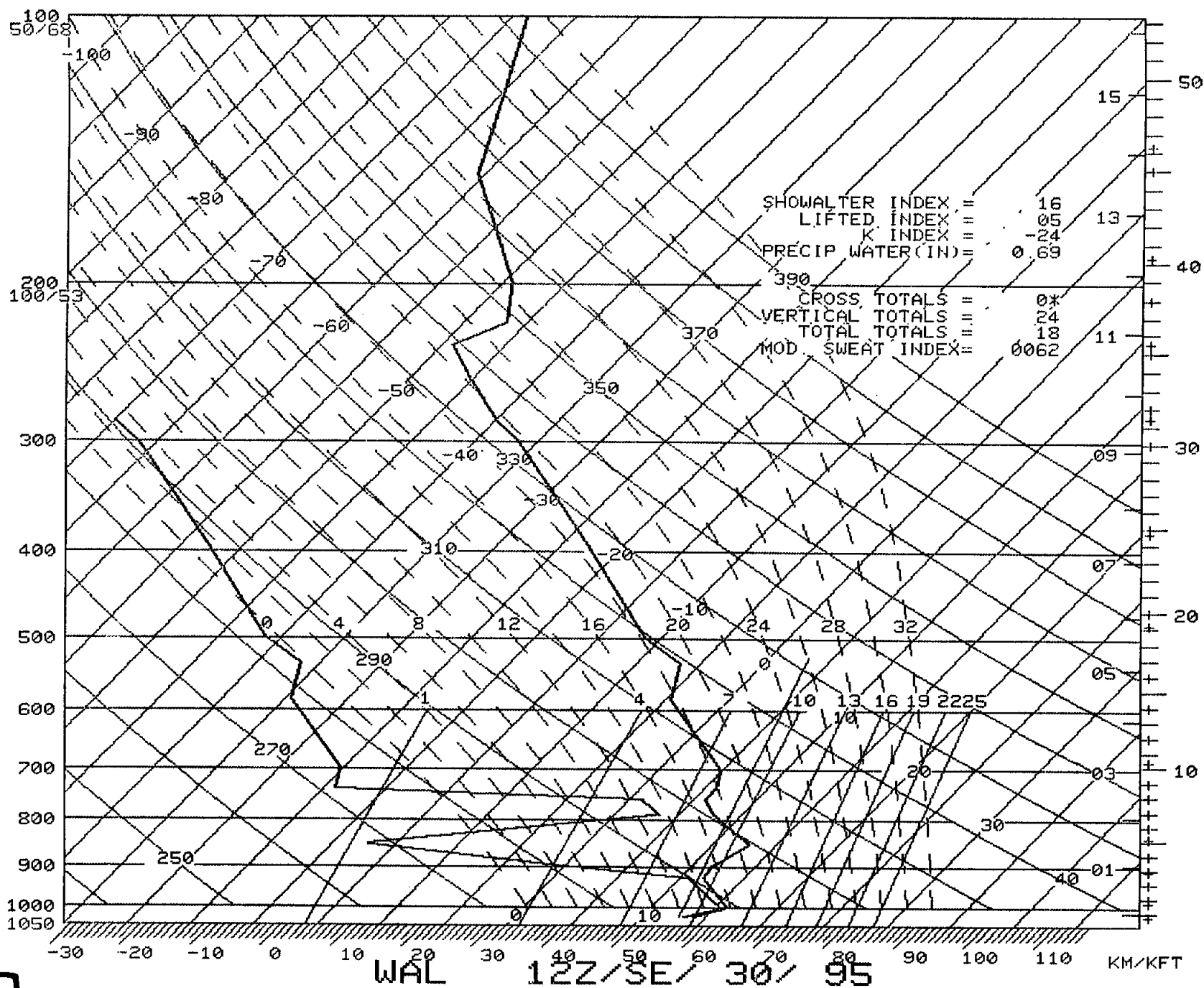
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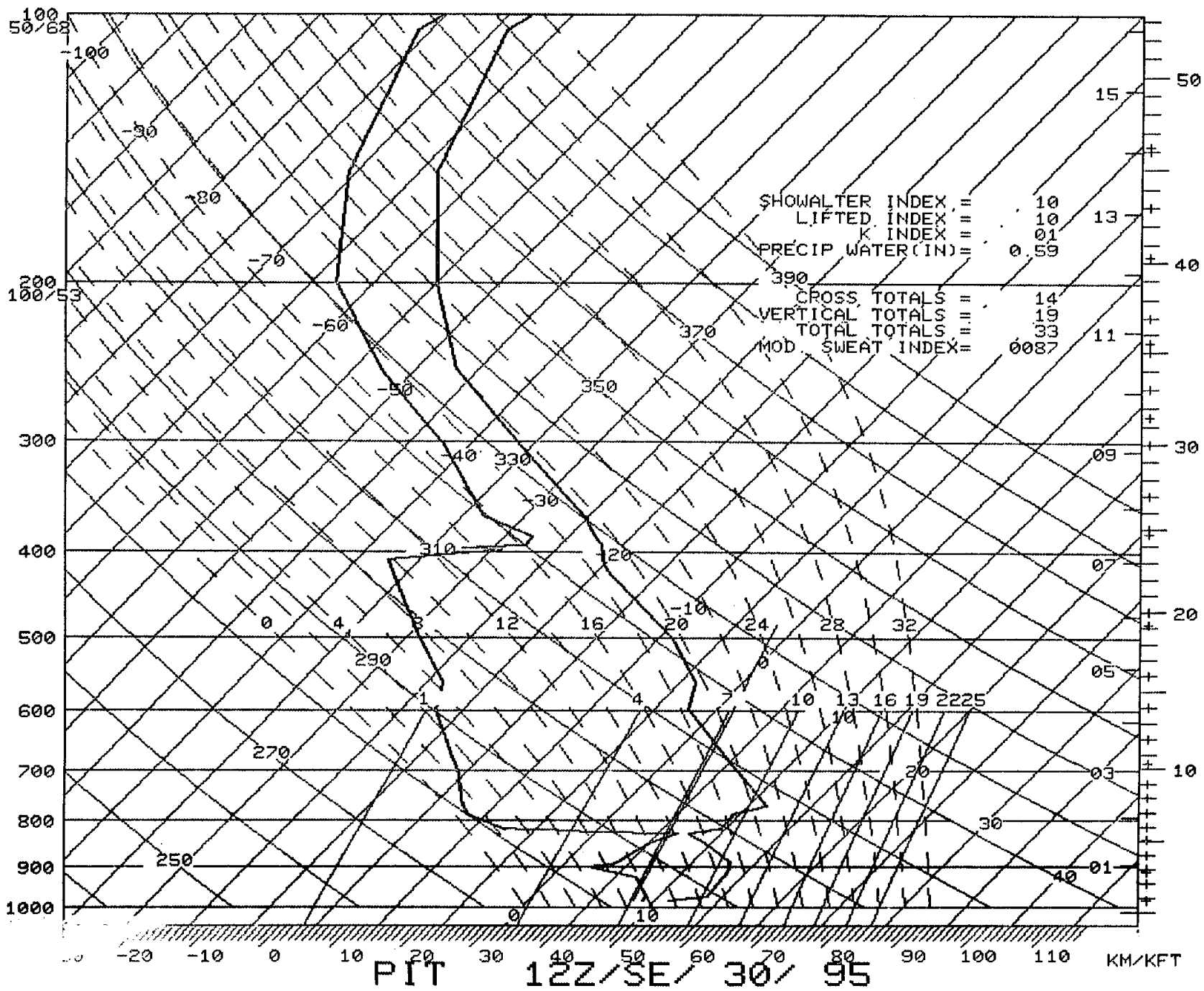
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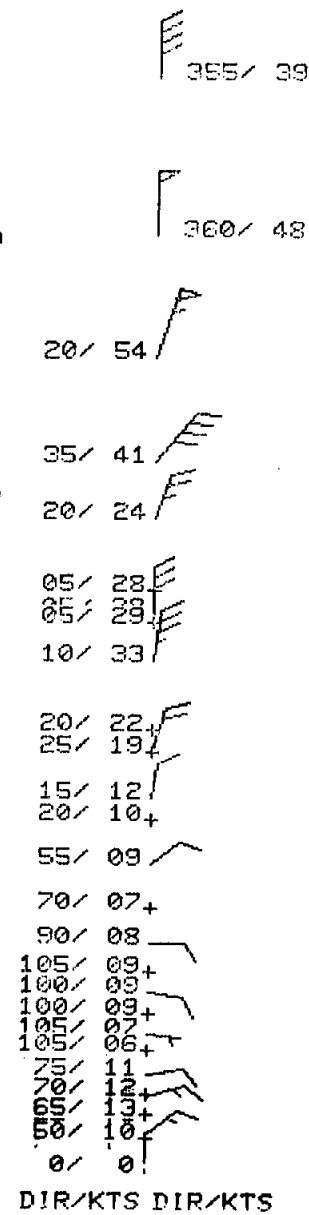
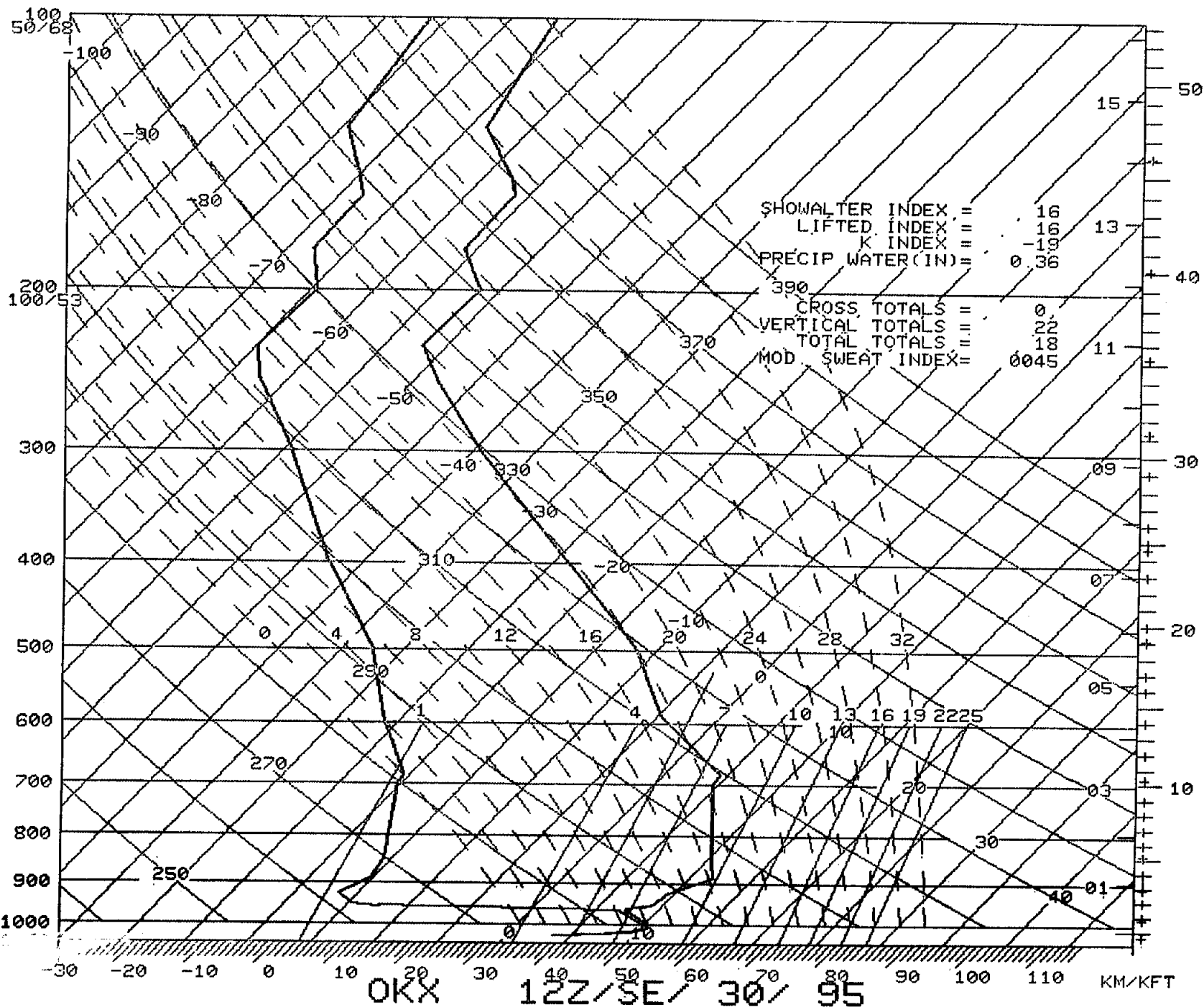
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29038 95014 31528 32018 28014=



TTA000 KOKX 301200

72501 TT08 00120 72501 00026 03804 11022 07804 22019 09205
33008 10204 44965 07205 55962 07256 66956 08471 77950 09074
88888 11677 99683 04275 11589 04972 22500 11771 33230 52163
44200 51763 55180 56162 66157 56362 77132 63761 88100 66560
31313 01102 81102=

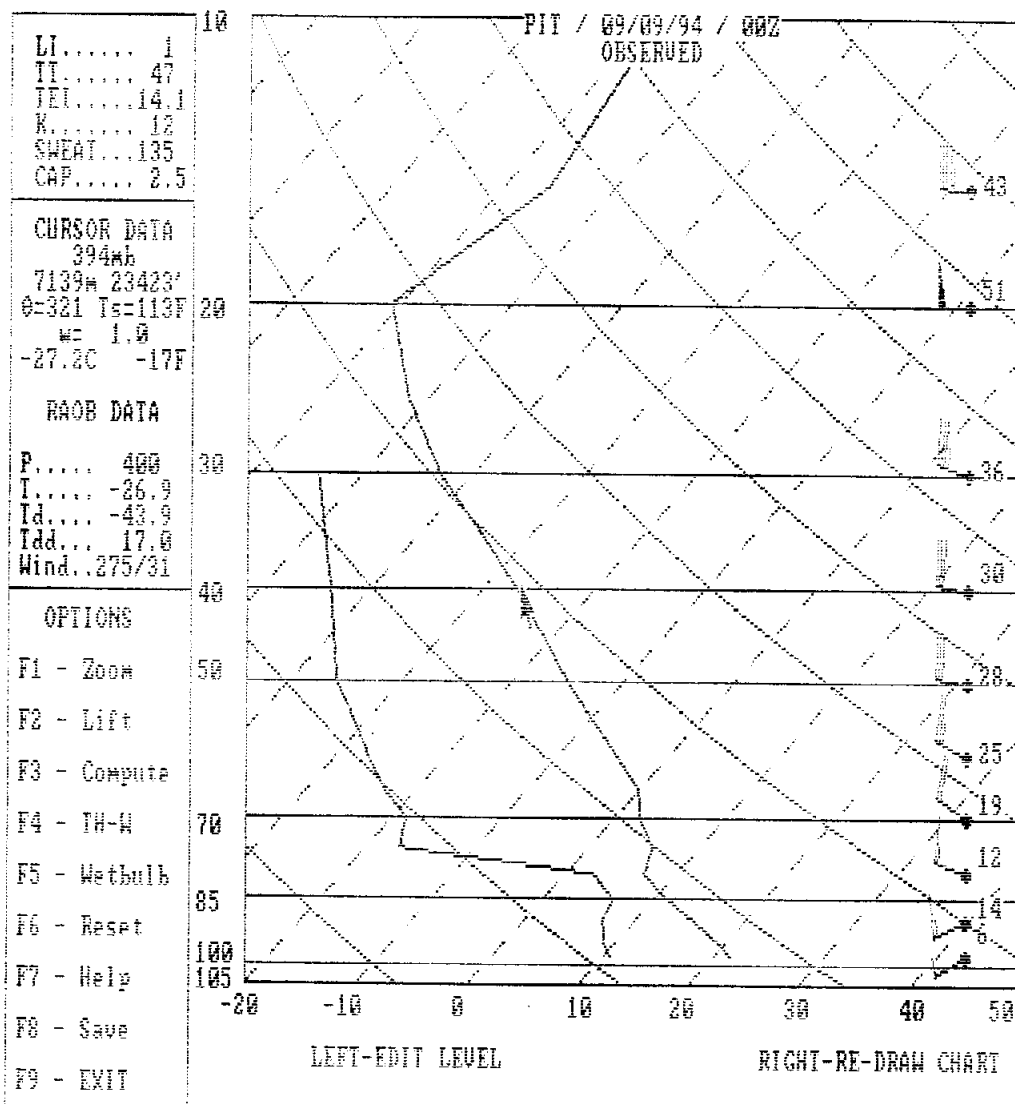
FP08 00120 72501 90012 00000 05513 06513 90346 07012 07511
10507 90789 10009 10009 10509 91246 07007 05509 02010 9179/
01512 02519 92035 02022 01033 00528 9269/ 00528 02024 93015
03333 03542 02054 9369/ 01555 35055 94249 00532 35032 35031
95014 34526 52510 30026=

ATTACHMENT 2

Reference Accident Data, September 8, 1994

Accident Data, September 8, 1994

0000 Z (UTC)



Single-Station RAOB data for: PIT

Date: 09/09/94 Time: 00 UTC

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*****CONVECTIVE INDICES*****

Lifted Index @ 500mb...	1	Cross Totals (CT).....	21
@ 300mb...	2	Vertical Totals (VT)....	26
		Total Totals.....	47
Shower Index.....	2		
Sweat Index.....	135	R+.....	0 J/kg
TEL.....	14.1	R-.....	0 J/kg
		Max UVV.....	0 m/s
K Index.....	12		
Precipitable Water.....	0.69 in	BRN.....	0
		Energy/Helicity Index..	0.00
700-500mb Lapse Rate...	6.6 C/km		

***** STORM ENVIRONMENT *****

STORM MOTION: 306/ 13

65

DEPTH	SHEAR			HELICITY					MEAN WIND	MEAN STORM		VORTICITY	
	Pos	Neg	Tot	Pos	Neg	Tot	Ave	Rel		Vector	Inflow	Horiz	Stream
	(10-3 s-1)			(m/s) ²							(Dir/kt)	(Dir/kt)	(10-3 s-1)
AGL													
m													

Station: Pittsburgh, PA
MicroART Rework Program

Ascension: 491-1 Release: 23:14 8-SEP-94
Version 1.52 Print: 17:53 9-SEP-94

WINDS DATA

TIME(min)	HEIGHT(M-AGL)	DIR	SPEED	HEIGHT(FT-MSL)	NOTES
0	0	250	6	1181	SIG
1	232	251	13	1942	
2	465	253	14	2707	
3	703	253	15	3487	
4	942	255	15	4272	SIG
5	1180	263	16	5052	
6	1447	273	15	5928	
7	1717	284	12	6814	
8	2010	297	12	7775	SIG
9	2280	297	14	8661	
10	2525	292	18	9465	
11	2771	288	21	10272	
12	3016	285	22	11076	
13	3261	287	23	11880	
14	3507	290	23	12687	
15	3771	291	23	13553	
16	4035	289	24	14419	
17	4299	283	26	15285	
18	4562	276	30	16148	SIG
19	4826	274	31	17014	
20	5090	275	30	17880	
21	5353	273	29	18743	
22	5623	272	28	19629	
23	5892	272	30	20512	
24	6161	273	31	21394	
25	6429	278	30	22273	
26	6690	279	29	23130	
27	6933	277	30	23927	
28	7191	277	32	24773	
29	7461	278	31	25659	
30	7721	279	32	26512	
31	7984	279	33	27375	
32	8245	279	35	28231	
33	8506	278	35	29088	
34	8768	278	36	29947	
35	9029	279	36	30803	
36	9256	284	35	31548	
37	9514	288	36	32395	
38	9780	289	37	33267	
39	10046	289	34	34140	
40	10315	285	34	35023	SIG
41	10592	280	37	35931	
42	10870	279	43	36843	
43	11147	275	46	37752	
44	11425	270	46	38664	
45	11699	271	51	39563	
46	11947	273	55	40377	
47	12206	270	55	41227	
48	12471	268	57	42096	SIG
49	12735	273	56	42962	
50	13001	276	53	43835	
51	13272	271	46	44724	
52	13536	267	42	45590	

FLIGHT SUMMARY DATA

STATION: Pittsburgh, PA
DATE: 09-SEP-94
R/S No.: 84422626.ST
TERM: BALLOON BURST

INDEX: 72520
HOUR: 0
LAUNCH TIME: 23:14
TERM PRESS: 12.7

WBAN: 94823
ASC. NO: 491-1
TERM HT: 29700

WINDS

TIME(min)	PRESS(mb)	HT(M-MSL)	TEMP(C)	RH(%)	DP(C)	DIR	SPEED	REASON
0.0	976.3	360	21.5	50	10.7	250	6	SFC
0.2	971.2	405	21.5	47	9.6	250	7	SFC20
2.0	925.0	825	17.6	53	7.8	253	14	MAND
5.0	850.0	1540	11.3	70	6.0	263	16	MAND
6.9	799.5	2048	7.0	72	2.4	283	12	TEMP
7.6	779.9	2252	6.0	54	-2.7	292	12	TEMP
8.1	766.0	2399	5.9	21	-14.8	297	12	RH
8.5	755.0	2517	6.0	18	-16.5	297	13	TEMP
11.0	700.0	3131	2.3	20	-18.2	288	21	MAND
12.9	660.6	3597	0.0	17	-22.4	287	23	FRZ
13.6	647.1	3762	-0.5	15	-23.7	289	23	TEMP
21.2	500.0	5766	-15.0	15	-35.7	273	29	MAND
22.6	475.4	6145	-18.2	16	-37.8	272	29	TEMP
25.7	424.8	6977	-23.1	16	-42.0	279	29	TEMP
27.5	400.0	7414	-26.9	19	-43.5	277	31	MAND
28.8	380.6	7770	-30.2	28	-42.7	278	31	RH
29.4	372.5	7922	-31.5	21	-46.4	278	31	RH
30.3	360.1	8161	-33.7	28	-46.0	279	32	TEMP
35.1	300.0	9415	-43.3	28	-54.3	280	36	MAND
36.2	289.2	9661	-44.8	27	-55.8	285	35	TEMP
39.8	250.0	10619	-52.1	29	-61.8	286	34	MAND
44.9	200.0	12035	-60.8	30	-69.3	271	51	MAND
45.4	196.2	12154	-60.6	30	-69.0	272	53	TEMP
46.5	187.6	12434	-58.7	30	-67.4	272	55	TEMP
49.9	162.6	13333	-57.9	29	-67.0	276	53	TEMP
50.5	158.4	13499	-56.7	28	-66.0	273	49	TEMP
51.8	150.0	13844	-56.1	27	-65.7	268	43	MAND
52.9	143.4	14131	-55.4	27	-65.3	270	40	TEMP
57.6	116.5	15443	-59.2	26	-68.8	269	40	TEMP
58.3	113.1	15629	-58.4	26	-68.2	269	40	TEMP
58.9	110.3	15786	-59.4	26	-69.0	269	40	TEMP
61.2	100.0	16400	-59.2	26	-68.9	277	35	MAND
62.7	93.4	16830	-56.5	25	-66.7	285	28	TEMP
65.4	82.9	17585	-57.4	25	-67.5	286	18	TEMP
66.1	80.5	17771	-56.0	25	-66.4	287	18	TEMP
68.6	71.9	18488	-56.7	24	-67.2	282	17	TEMP
69.2	70.0	18658	-56.3	24	-66.9	281	14	MAND
70.0	67.6	18881	-54.2	23	-65.1	276	11	TEMP
73.7	57.1	19959	-53.5	23	-66.5	262	13	TEMP
76.6	50.0	20809	-53.4	22	-65.0	255	12	MAND
78.9	45.0	21486	-54.0	21	-65.7	249	10	TEMP
81.1	40.5	22166	-51.5	20	-63.8	230	4	TEMP
82.3	37.9	22596	-51.9	20	-64.3	226	4	TEMP
84.5	34.0	23294	-55.5	20	-67.4	194	4	TEMP
87.0	30.0	24095	-53.4	20	-65.7	105	2	MAND
91.6	23.5	25668	-52.8	19	-65.4	52	13	TEMP

TIME(min)	PRESS(mb)	HT(M-MSL)	TEMP(C)	RH(%)	DP(C)	WINDS		REASON
						DIR	SPEED	
94.5	20.0	26715	-50.1	19	-63.1	80	15	MAND
97.1	17.3	27661	-50.3	19	-63.4	76	12	TEMP
102.0	12.7	29700	-45.5	18	-59.7	0	0	TERM

Fixed Ht. (ft)	Wind Dir	Wind Speed (kts)
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1000	0	0
2000	251	13
3000	253	14
4000	254	15
6000	274	15
7000	287	12
8000	297	13
9000	295	16
12000	287	23
14000	290	24
16000	277	29
20000	272	29
25000	277	32
30000	278	36
35000	285	34
50000	270	41
70000	247	11
90000	81	13