TN
90
8

te technical note techn

Enhanced Low Level Wind Shear (LLWAS) 6-Sensor Improvement User's Manual for Data Processing of Field Data

Eric J. Hoover

JUN 15 1990
TECHNICAL CENTER LIBRARY
ATLANTIC CITY, N.J. 08405

May 1990

DOT/FAA/CT-TN90/8

Document is on file at the Technical Center
Library, Atlantic City International Airport, N.J. 08405

U.S. Department of Transportation
Federal Aviation Administration

Technical Center
Atlantic City International Airport, N.J. 08405

NOTICE

This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for the contents or use thereof.

The United States Government does not endorse products or manufacturers. Trade or manufacturers' names appear herein solely because they are considered essential to the objective of this report.

Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
DOT/FAA/CT-TN90/8		

4. Title and Subtitle	5. Report Date
ENHANCED LOW LEVEL WIND SHEAR (LLWAS) 6-SENSOR IMPROVEMENT USER'S MANUAL FOR DATA PROCESSING OF FIELD DATA	May 1990
	6. Performing Organization Code DOT/FAA/CT-TN90/8
7. Author(s) Eric J. Hoover	8. Performing Organization Report No.
9. Performing Organization Name and Address U. S. Department of Transportation Federal Aviation Administration Technical Center Atlantic City International Airport, NJ 08405	10. Work Unit No. (TRAIS)
	11. Contract or Grant No.
12. Sponsoring Agency Name and Address U. S. Department of Transportation Federal Aviation Administration Technical Center Atlantic City International Airport, NJ 08405	13. Type of Report and Period Covered Technical Note
	14. Sponsoring Agency Code

15. Supplementary Notes

16. Abstract

The Low Level Wind Shear Alert System (LLWAS) data collection includes only those Fairchild/Weston 6 and N Sensor sites qualified to copy data to TK50 magnetic tape catridges. The data is prescribed to be collected on a 90-day schedule for 6-Sensor airports, and a 60-day schedule for N-Sensor airports, by copying the data on to the TK50 catridge and then mailing it to FAATC, ACN-230, Atlantic City International Airport, Atlantic City, NJ.

The purpose of this document is to provide information to the processing of the LLWAS-recorded wind data at the Federal Aviation Administration Technical Center Data Analysis Facility.

17. Key Words	18. Distribution Statement
Low Level Wind Shear Alert System (LLWAS)	This document is on file at the Technical Center Library, Atlantic City International Airport, Atlantic City, NJ 08405

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	29	

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

TABLE OF CONTENTS

	PAGE
1. GENERAL DESCRIPTION	1
1.1 Introduction	1
1.2 Purpose	1
2. TECHNICAL DESCRIPTION	1
2.1 Introduction	1
2.2 Component Description	2
2.3 TK50 Tracking Information Description	7
2.4 Data Processing Description	8
2.5 Archival	26

LIST OF ILLUSTRATIONS

Figure		
2.2.1-1	LLWAS Lab - System Rack	3
2.2.4-1	TK50 Magnetic Tape	4
2.2.5-1	TK50 Tape Drive	4
2.2.6-1	LLWAS Lab - Data Processing Components	6

1. GENERAL DESCRIPTION.

1.1 INTRODUCTION.

The Low Level Wind Shear Alert System (LLWAS) data collection includes only those Fairchild/Weston 6 and N Sensor sites qualified to copy data to TK50 magnetic tape cartridges. The data is prescribed to be collected on a 3-month schedule for 6-Sensor airports and a 2-month schedule for N-Sensor airports. This is accomplished by copying the data onto the TK50 cartridge and mailing it to the Federal Aviation Administration (FAA) Technical Center, ACN-230, Atlantic City International Airport, Atlantic City, NJ. 08405. After the data is received, it is processed for analysis by LLWAS meteorologists at the FAA Technical Center to determine the performance of the LLWAS configuration. After the LLWAS meteorologists have analyzed the plotted data, a copy of the data from select airports is made and sent to APS-340, Washington, D.C. 20591.

The processing of the data is done by using one of the following procedures:

- Fairchild 6-Sensor
  - Copying Procedure
  - Processing Procedure
  - Cleanup Procedure
  - Plotting Procedure

- Fairchild N-Sensor
  - Copying Procedure
  - Processing Procedure
  - Cleanup Procedure
  - Plotting Procedure

1.2 PURPOSE.

The purpose of this document is to provide information pertaining to the processing of LLWAS-recorded wind data at site--FAA Technical Data Analysis Facility. This information will include a description of the lab layout, components involved in the task, and the procedures to accomplish the task. The procedures include copying, processing, and plotting.

2. TECHNICAL DESCRIPTION.

2.1 INTRODUCTION.

The copying, processing, and plotting procedures included in the complete process of data collection involve several devices that the user must become familiar with in order to complete the required tasks. The following are brief descriptions of the components involved and their location in the LLWAS laboratory environment.

2.2 COMPONENT DESCRIPTION.

2.2.1 MicroVAX II.

The MicroVAX II is the device that houses the Central Processing Unit (CPU), located in the system rack (refer to figure 2.2.1-1). The MicroVAX II controls all processing on the system, using the MicroVMS software which includes the Digital Command Language (DCL).

2.2.2 RA81 System Hard Disk.

The Digital RA81 hard disk offers 460 megabytes of total memory with the usable capacity for the data processing procedures at 180 to 200 megabytes. The RA81 is located in the system rack (refer to figure 2.2.1-1).

2.2.3 RL02 Disk Pack.

The Digital RL02 disk pack offers 10 megabytes of total memory and is used to backup the results of data processing. It is not a continuously mounted device; therefore, the device will be mounted when a procedure makes the request. The RL02 is located in the system rack (refer to figure 2.2.1-1).

2.2.4 TK50 Magnetic Tape.

The TK50 magnetic tape offers 90 megabytes of total memory and will usually contain only 90 days of data. A TK50 tape has a write-lock protection switch that can be used to protect the data already recorded by not allowing the tape to be written to during a procedure. The user must be familiar with this switch (refer to figure 2.2.4-1), and also be sure that the switch is always in the protect position.

2.2.5 TK50 Tape Drive.

The TK50 tape drive is used to transfer data from the TK50 magnetic tape to the RA81 hard disk. The user will need to be familiar with four parts of the TK50 tape drive which includes (1) the tape drive door, (2) the insertion slot above the door, (3) the red pushbutton, and (4) the green light (refer to figure 2.2.5-1). The TK50 tape drive is not a continuously mounted device; therefore, the drive will mount and dismount the TK50 tape as needed by the procedure being executed. The TK50 tape drive is located in the system rack (refer to figure 2.2.1-1).

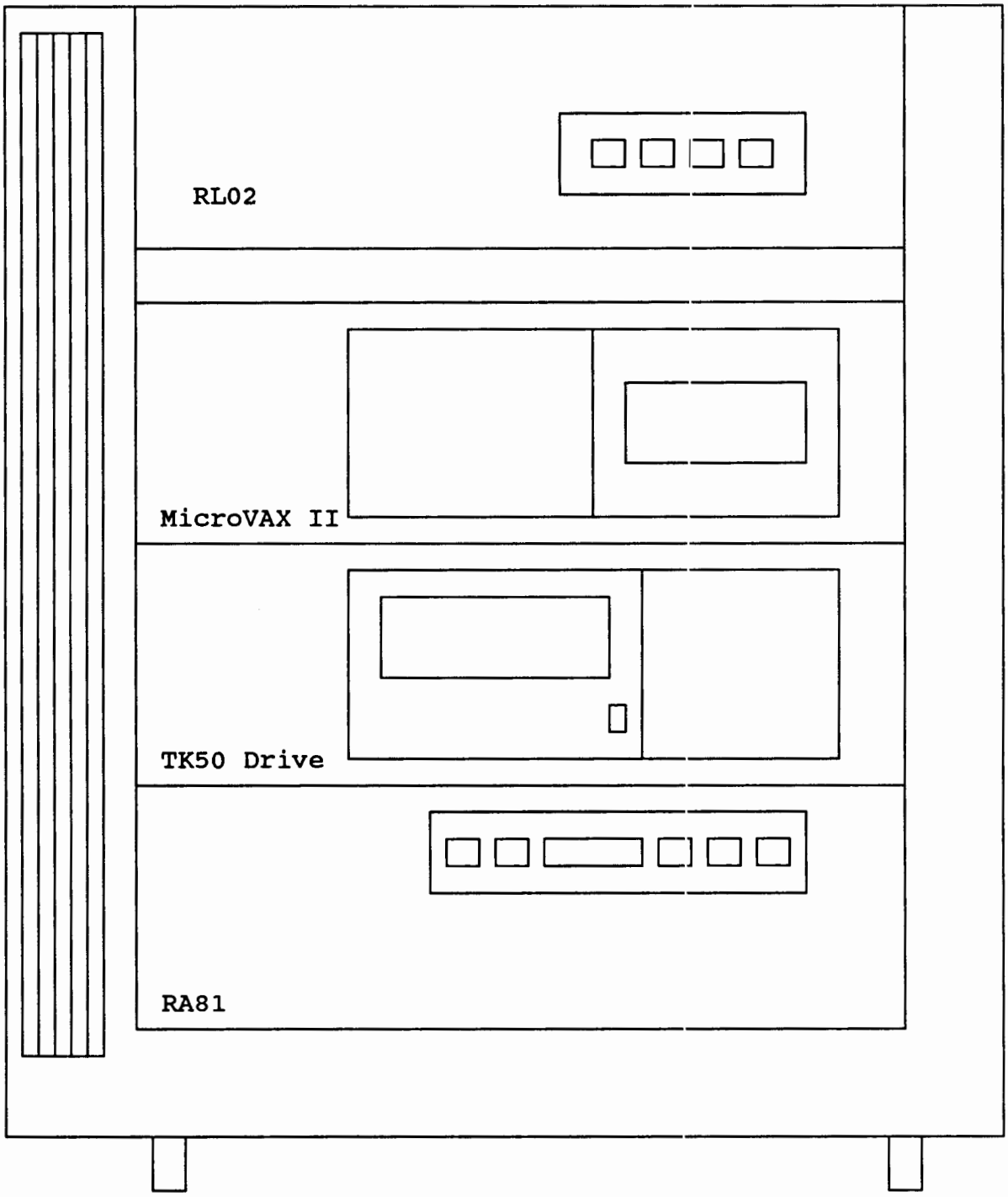


FIGURE 2.2.1-1. LLWAS LAB - SYSTEM RACK

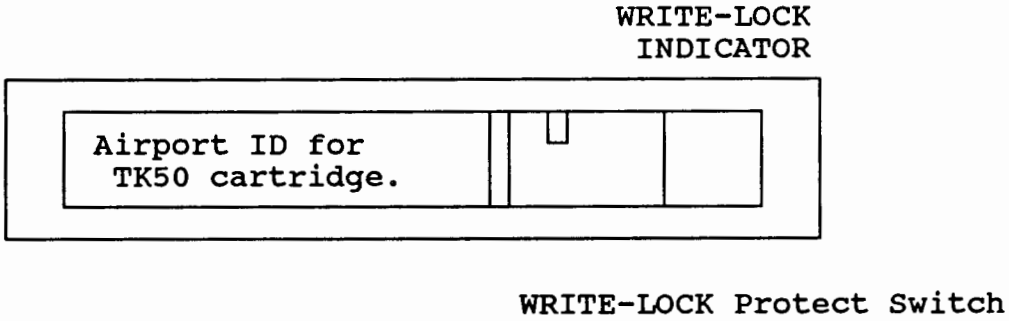


FIGURE 2.2.4-1. TK50 MAGNETIC TAPE

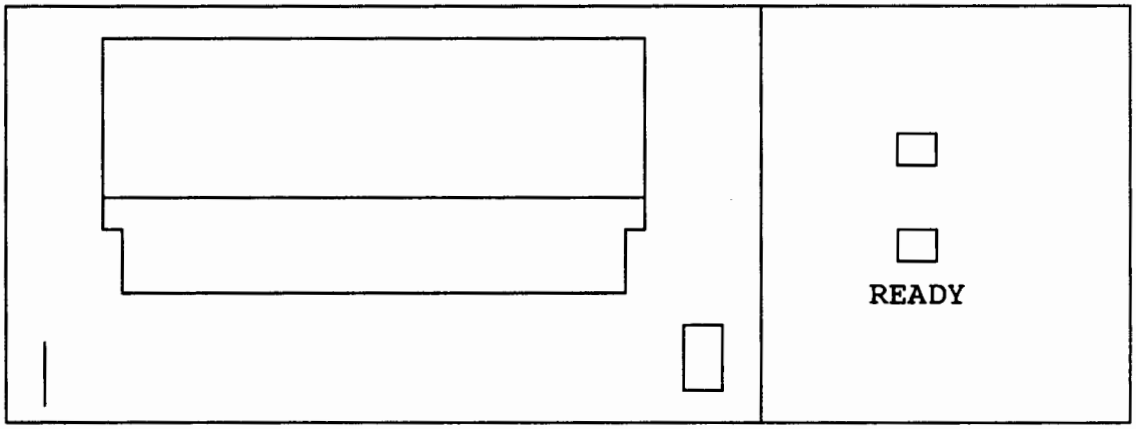


FIGURE 2.2.5-1. TK50 TAPE DRIVE

2.2.6 VT220 Terminal.

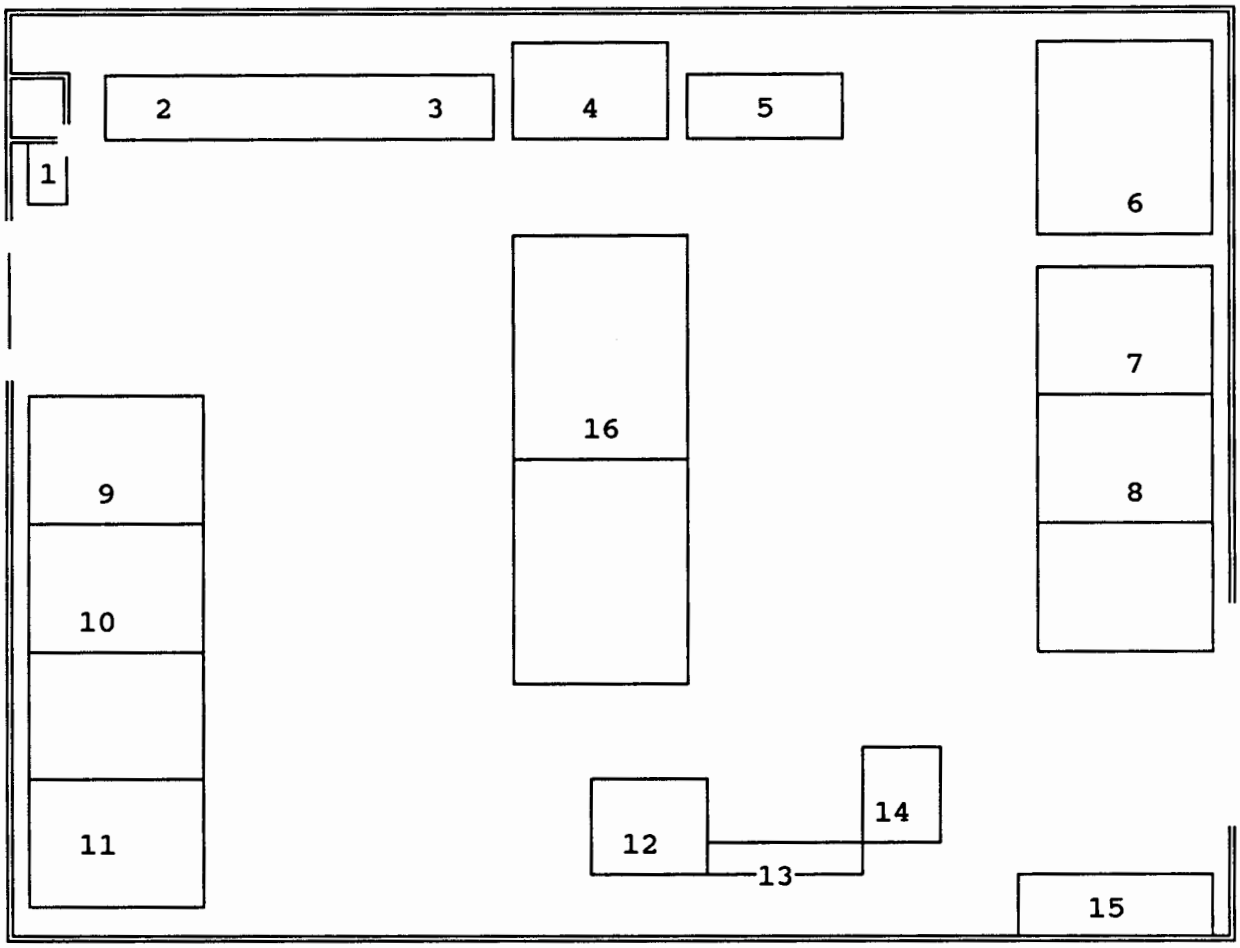
The VT220 terminal is used as the device to log onto the MicroVAX II in order to execute the procedures that complete the data processing. The user will use the keyboard located at the terminal to make all entries for each procedure. The VT220 terminals are in various locations in the LLWAS laboratory (refer to figure 2.2.6-1).

2.2.7 LG01 Printer.

The LG01 printer is used to print out the **COUNT-WINDS** results from the data processing and the directory listing of the files contained on the RL02 disk pack. The LG01 is located next to the system rack in the LLWAS lab (refer to figure 2.2.6-1). If an out-of-paper condition occurs, the LLWAS programmers will take care of reloading the LG01 with paper in order that the user only needs to be concerned with the basic RUN, STOP, and FORM FEED functions.

2.2.8 LN03 Printer.

The LN03 printer is used to plot the results of the data processing for analysis by the LLWAS meteorologists. The LN03 is located in the LLWAS laboratory area (refer to figure 2.2.6-1). If an out-of-paper condition occurs, the user must remove the paper tray, insert the correct amount of paper, and return the paper tray to its correct position in the LN03.



1. Data storage for processing; Reference Manuals.
2. PC Emulation of VT220 Terminal.
3. 9-track device.
4. System Rack -- RL02 disk pack, MicroVAX II, TK50 tape drive, RA81 system disk.
5. LG01 Line Printer.
6. LN03 Laser Printer.
7. VT340 Graphics Terminal work station.

8-11. VT220 Terminal work station.

12. LLWAS duplicate system: PDP 11/73, TK50 tape drive, system disk.
13. DEC Writer III.
14. VT100 Terminal for LLWAS software operation.
15. Storage of miscellaneous material.
16. Work Tables.

FIGURE 2.2.6-1. LLWAS LAB - DATA PROCESSING COMPONENTS

2.3 TK50 TRACKING INFORMATION DESCRIPTION.

To insure the timely processing of data, it is necessary to have a method of following the steps of the process from start to finish. The method devised for this data process includes a tracking system in which to record the beginning and ending of each procedure. This tracking system, which is called the Tracking Log Notebook (TLN), includes the most pertinent information for identification of each TK50 data tape and the status of the data process. An example of a block from the TLN is shown below for reference.

```
Process date:  /  /        Data on Tape: start date [  /  /  ]
                                         end date [  /  /  ]

AIRPORT ID:_________ TAPE #:_________________
Status of Process:
_____________________________________________ Comments:
TK50 on Disk_____________________________|____|
Processed and Printout_____________________|____|
    Plots: Contours_____________________|____|
                   Windroses____|____|
           Speed Deviation_________|____|
           Direction Deviation_____|____|
           Failure Histogram_______|____|
           Total Sector Alarms_____|____|
           Breakdown of Alarms_____|____|
```

The beginning date of the process, the airport identification (ID), and the TK50 tracking number are recorded in the TLN before any data is loaded onto the system. The process date is the calendar day that the TK50 data will be copied onto the RA81 hard disk, signifying the starting of the TK50 in the complete process. After the process date has been entered, the airport ID and tape number will be taken from the TK50 and then entered in the appropriate blanks in the TLN. The section of the block that is labeled Status of Process provides a quick reference, by inspection, of the current status of the TK50 process. The comments section affords a space to record any peculiarities about a TK50 (e.g., bad tape, Special_Case process, etc.). Notice the upper right hand portion of the block labeled **Data on Tape**. The dates to be entered here are taken from the results of the processed data and are very important for database and reference purposes.

2.4 DATA PROCESSING DESCRIPTION.

2.4.1 Introduction.

The following procedures are divided into three groups according to the type of data process that must be performed. The first group includes the necessary procedures to completely process the data for the Fairchild Six Station sites. The second group contains the procedures that will process the data for the two Fairchild N-station sites, and the third will completely process Special Case blocks of data for the Fairchild Six Station sites.

2.4.2 Fairchild Six Station.

2.4.2.1 Copy Procedure For TK50 Data.

Before inserting and copying any TK50 tape(s), the user must determine the number of TK50 tapes to be processed and then enter the correct information into the TLN.

The TK50 cartridges to be processed are located in the Wind Data storage box labeled **TO BE LOADED**. Remove the cartridge from storage and remove the tape from the plastic protection case. Then slide the WRITE-LOCK switch to the position where the red indicator is showing (refer to figure 2.2.5-1.). This will insure that accidental writing of data to the tape cannot be done.

Gently lift up the TK50 drive door and insert the tape into the slot; notice that there is only one way the cartridge can be inserted into the slot. After the tape is inserted, the door must be gently moved down to its closed position and the red pushbutton must be depressed. When the green light is **ON** and the red pushbutton is **ON**, the user may continue.

After the TK50 tape is inserted, the user must log on to the MicroVAX II by entering the name of the User and the Password. The current user and password may be obtained from the system operation manager (i.e., one of the LLWAS computer programmers). When the user has correctly logged onto the system, an **$ prompt** will appear on the screen informing the user that the system is waiting for input from the keyboard.

CAUTION: When the $ prompt appears, the user must enter **WIND-UTILS** to get into the correct directory for the process and then enter **FAIR-DUMP** to proceed with copying data from the TK50 tape to the RA81 hard disk. The user will be entering important information while being led through the process. (**NOTE**: Precise entering of the information is very important.)

The FAIR-DUMP procedure begins by displaying the following message:

```
How many TK50 cartridges are to be copied?
```

The user must enter a number; anything other than a number will not be recognized as a valid choice. When an invalid choice is made, the following message is displayed:

```
---------------------------------------------
   Please ENTER a number
---------------------------------------------
```

After this message, the user is returned to the question and is given the opportunity to make a valid choice.

After the number of cartridges has been entered, the **FAIR-DUMP** process continues by checking the RA81 hard disk for available FREE blocks. This is to insure that the available memory for use by all the users on the system stays at a safe level in order that the system does not crash. If the number of FREE blocks is at a safe level, no message is displayed. If the number of FREE blocks is below the safe level, the following message is displayed:

```
You need - a number - blocks to process - a number-
airports.  The disk has only - a number - blocks
available.  Therefore, the DUMP procedure will be
exited and not allowed until more FREE blocks are
available.
```

The next message displayed concerns the three-letter airport ID. The message displayed is:

```
Enter  airport  identifier:
```

The user must enter the three-letter airport ID of the TK50 tape that is to be copied (**NOTE**: NO error check is done at this point so the user must be very careful to enter the correct three-letter airport ID).

After the three-letter airport ID is entered, the next screen is displayed:

```
        The airport ready to be copied is: XXX


        ------------------------------------------------
            Please INSERT the TK50 tape to be copied.
        ------------------------------------------------



   1 --  CONTINUE the copying process.
   2 --  RETRY
   3 --  EXIT

ENTER the number of your choice:
```

The user is prompted with a message that is a reminder of the three-letter airport ID, a request/reminder for the user to insert the TK50 tape, and three options for the user to choose from. The first is to **CONTINUE** the copying process and, when chosen, takes the user to the next step in the process. The second choice is **RETRY**, which gives the user the option to enter a different three-letter airport ID. The third choice will completely **EXIT** the user from the process.

When CONTINUE is chosen, the next screen displayed announces the process that is going to commence. This screen is displayed as follows:

```
*********************************************
*                                           *
*     Copying Fairchild Enhanced Wind Data  *
*                                           *
*********************************************
```

Underneath the previous messages, the user is notified that the TK50 mount is being attempted, and upon completion, information is displayed pertaining to the status of the attempted mount. If the mount is not successful, the procedure is exited and error messages are displayed. When the mount is successful, another message is displayed informing the user that data from the TK50 tape is being copied onto the RA81 hard disk and a continuation of messages, which refer to the files being copied, are displayed. These messages will continue until all the data have been copied. (The file **ALAUNIQUE.INI** is copied <u>and</u> printed). Once the data are copied, a list of all copied Julian date files is printed. The user should get this list and use it to select a start file and an end file. When processing continues, the files' 3-digit Julian dates are entered as start Julian Date and end Julian Date, respectively. These files, and all files with Julian dates between them, are appended into one file; another continuation of messages, which inform the user that an **APPEND** is being performed, will be displayed on all copied files.

When the data has been copied and appended, a question is displayed as follows:

```
Would you like to delete individual files?
```

The user will answer yes (Y) to the question. After entering yes (Y), the TK50 is then dismounted.

The continuation of the **FAIR-DUMP** process is dependent upon the number of airports to be processed. When the **FAIR-DUMP** process is complete, the user will place the copied TK50 tape(s) into the plastic protective case and into the Wind Data storage box marked **TO BE PROCESSED**. The user may then initiate the NIGHT process, which is described in section 2.4.2.2.

<u>2.4.2.2 Processing Procedure</u>.

Processing of the TK50 data will be done at night in order that more data may be processed and the system will be more responsive during work hours.

The user must check to be sure that TK50 data has been copied onto the RA81 for processing before attempting to initiate this procedure. When the user has

verified that TK50 data has been copied and is ready to be processed, this procedure may commence.

After logging onto the MicroVAX II system, the user will enter **WIND-UTILS** to be transferred to the correct directory for the procedure. The user will then initiate the setup procedure for processing by entering **NIGHT**, and when entered, the user will verify that no autoplotting is occurring, and the following announcement will be displayed:

```
*************************************
***************       ***************
**********                **********
*****                           *****
**        THE  NIGHT  SHIFT        **
*****                           *****
**********                **********
***************       ***************
*************************************
```

After this announcement, the procedure will automatically retrieve the three-letter airport ID(s) of the TK50 data that has been copied onto the RA81 hard disk. It will determine the correct parameters for the process and then submit each airport's data as a batch job.

As each airport's data is prepared and submitted, the following message is displayed:

```
****************************************
**                                    **
**        THE  NIGHT  SHIFT           **
**                                    **
****************************************
**        A I R P O R T   1          **
****************************************

          AIRPORT ID HAS BEEN SUBMITTED
```

The previous message is displayed for each airport, number, and ID that has been submitted for processing.

When all of the airports have been submitted for processing, the batch queue will be displayed for verification by the user. Within the batch queue, the user will need to look for the three-letter airport ID as a prefix to **COUNT** (i.e., ***COUNT). After the batch queue is displayed, the user will automatically be exited from the procedure and the **$ prompt** will appear.

2.4.2.3 Cleanup Procedure.

The Cleanup Procedure must be employed after the Processing Procedure has finished processing the airport data that was submitted the previous workday. During the description of this procedure, three asterisks (***) will represent the three-letter ID for an airport.

To begin the Cleanup Procedure, the first step for the user is to log onto the MicroVAX II system by entering the name of the User and the Password. After logging onto the system, the user must enter **WIND-UTILS** to get into the correct directory for the process and enter **CLEANUP** to begin the procedure. (**NOTE:** The user will need to answer questions and enter important information throughout this procedure.)

When the user has entered **CLEANUP**, the display screen will clear and the following announcement is displayed:

```
*************************
*        CLEANUP        *
*                       *
*************************
```

After the announcement, the procedure displays information pertaining to the process status of the airport data that was submitted for processing. This includes the three-letter ID of the airport(s), batch queue information, and a question for the user to answer. This information is displayed in the following format:

```
AIRPORT(S) SUBMITTED LAST NIGHT:
                  ***
                  ***
                  ***

Batch queue    SYS$BATCH

  JOB NAME        USERNAME          ENTRY     STATUS
  ______________  ______________    ______    ________

ARE ALL SUBMITTED AIRPORTS FINISHED PROCESSING?  Y/N
```

The batch queue may or may not have any information referring to one of the airports listed. If there is a job name present for an airport (***COUNT), that airport data is still being processed. Notice that the STATUS is "EXECUTING" and the question should be answered with N. When the user chooses N, the following statement and question are displayed underneath the previous information.

```
Please WAIT until all the airports are finished processing
before you proceed with CLEANUP.

Do you wish to EXIT the CLEANUP procedure?  Y/N
```

At this point, the user may choose to come back at a later time and do the Cleanup Procedure, allowing more time for that airport to finish processing. If this is the case, the user will answer the question with **Y** to EXIT the procedure. When the user does this, a $ prompt will appear returning the user to the system command level. In order to continue with the Cleanup Procedure at a later time, the user must enter **CLEANUP** in order to restart the procedure.

If the user answers the previous question with **N**, the display screen is cleared and the first information screen is displayed. This allows the user to continue in the Cleanup Procedure without exiting, and allows the user to wait for all airport data to finish processing.

When the user is in the first information screen, and all airports have finished processing, the user must answer the question with **Y** to continue with the Cleanup Procedure. When this is done, the following screen is displayed:

```
*****************************************************
PLEASE NOTE:  You must depress the LOAD button on the
 RL02 Disk Pack.  When the READY light is ON, then you
 may continue.
*****************************************************


 CONTINUE ??  Y or N
```

The user is responsible to prepare the RL02 Disk Pack for backing up the results of the data processing. The user must depress the LOAD button and wait for the READY light to come ON before entering **Y** to continue with the procedure. If the user enters **N**, the screen is cleared and the same message and question are displayed. Should the user choose **Y**, before depressing the LOAD button, a <u>severe error</u> will occur and a message will be displayed informing the user of this condition.

When the RL02 Disk Pack has been prepared correctly and Y has been chosen, the procedure checks the disk pack to determine the number of FREE blocks available for copying data. If the FREE block count is satisfactory, the procedure will continue. If not, the following messages are displayed:

```
The amount of FREE blocks on the RL02 Disk Pack available
to the user has been depleted below the minimum safety level.
Therefore, the disk pack needs to be replaced.  The procedure
currently being used will be exited so that replacing of the
disk pack can be completed.

The number of FREE blocks currently available is:   ---

The minimum safety level is currently set at 300 blocks.
```

After the previous messages, the procedure follows steps to exit the user from the procedure in order to facilitate replacing the RL02 Disk Pack. The following messages will be displayed for the user's information:

```
Please press the LOAD button on the RL02 Disk Pack so that
the READY light is off and the LOAD button light is on.
```

```
The CLEANUP Procedure has been exited due to a lack of FREE
blocks on the RL02 Disk Pack.
```

When the RL02 Disk Pack has been readied and the user has chosen to continue with the procedure, the following information is displayed:

```
Please record the following dates in the TRACKING LOG notebook
The dates for the airports that were processed are:


        ***
    START_DATE: __/__/__
    END_DATE:   __/__/__
```

The dates given for each processed airport are to be recorded in the TLN. The number of airport dates to be entered will depend on how many airports were processed.

After the dates have been entered, the processing associated with the following three screens will be repeated for each airport being cleaned up. The first of these screens is displayed as:

```
Airport    1 --     ***
What is its tape ID number?
```

The procedure will determine which airport to Cleanup, but the user must input the tape ID number. The tape ID number is found in the TLN and then carefully entered to continue with the procedure.

After the tape ID number(s) is entered, the procedure will clear the screen and display the second screen as:

```
ARE YOU READY TO CLEAN UP     ***    ?    Y/N
```

If the user chooses **N**, the screen is cleared and the same message is displayed.

When **Y** is chosen, the third screen is displayed underneath the previous one:

```
DO YOU WANT A COPY OF THE   ***  COUNT_WINDS.LOG FILE? Y/N
```

The user will choose **Y** or **N** depending on the requirements for this file. If Y is chosen, the file is printed out on the LG01. When the last file is being printed, the procedure will clear the screen and display the following message:

```
PLEASE WAIT UNTIL LOG FILES ARE FINISHED PRINTING BEFORE
PROCEEDING.
```

If N is chosen, the file is not printed out.

Whether Y or N is chosen, the procedure will continue and messages will be displayed pertaining to each airport involved, informing the user of the steps the procedure is taking. These messages and steps will include deletion of files and backing up of the results from the data processing onto the RL02 Disk Pack.

The next message displayed is:

```
WOULD YOU LIKE A PRINTOUT OF THE DIRECTORY FOR THE
                    DISK PACK? Y/N
```

Entering Y allows the user to get a copy of the directory and continue. Entering N continues without printing a copy of the directory.

Next, the screen is cleared and messages are displayed informing the user that the wind data, that was copied onto the system for processing, is being deleted since it has been processed and is no longer needed on the system.

The procedure will now display a reminder message for the user that refers to the RL02 Disk Pack.

Please press the LOAD button on the RL02 Disk Pack so that the READY light is off and the LOAD button light is on.

Conclusion of the procedure will commence with the displaying of the following message:

The CLEANUP Procedure is completed. You may now PLOT the data.

At this point, the user is exited from the procedure and the $ prompt appears signifying that the user is at the system command level once again. Plotting of the process results may now be done using the Plotting Procedure in section 2.4.2.4.

2.4.2.4 Plotting Procedure.

The Plotting Procedure includes two methods that will plot the processed TK50 data (Freq-data). The first method is the manual method and it uses the LLWAS menu driven procedure. The second method implements the automatic plotting procedure. The user must be logged onto the MicroVAX II and then enter **WIND-UTILS** to be in the correct directory for the plotting procedure.

2.4.2.4.1 Manual Plotting.

The LLWAS menu procedure can be initiated by entering **LLWAS** and choosing **N** for the first question. When the first menu is displayed, the user must choose number one (1) to plot the wind frequency data and then enter the three-letter airport ID. Next, the menu will be displayed that provides the necessary options to do five of the seven products. The first five products include Contours, Windroses, Speed Deviations, Direction Deviations, and the Histogram of Failures. The correct entries for the LLWAS menus are given below according to the product name assigned in the displayed menu.

Beginning with the Plotting menu, the entries are as follows:

CONTOURS:

1	-	to plot contours
2	-	for all stations
.25	-	for contour interval
2	-	to plot on LN03 Plus
5	-	for all hours
--------	-	Data is being sent to plotter
3	-	to return to Plotting Menu

WINDROSES:

2	-	to plot windroses
2	-	for all stations
2	-	to plot on LN03 Plus
5	-	for all hours
-------	-	Data is being sent to plotter
3	-	to return to Plotting Menu

SPEED DEVIATIONS:

3	-	to plot speed deviations
2	-	for all stations
2	-	to plot on LN03 Plus
5	-	for all hours
--------	-	Data is being sent to plotter
3	-	to return to Plotting Menu

DIRECTION DEVIATIONS:

4	-	to plot direction deviations
2	-	for all stations
2	-	to plot on LN03 Plus
5	-	for all hours
--------	-	Data is being sent to plotter
3	-	to return to Plotting Menu

HISTOGRAM OF FAILURES:

5	-	to plot histogram of failures
2	-	to plot on LN03 Plus

After the previous entries have been made, the user must exit the LLWAS menus. When exiting is complete and the $ prompt is returned, the user may take the necessary steps to plot the final two products.

The user must continue on the **WIND-UTILS** directory and make the following entries to complete the final two products. The user must enter **RUN SECTOR-ALARM-HISTOGRAM**, and the three-letter airport ID. When the $ prompt appears, the user must enter **RUN ALARM-BREAKDOWN-HISTOGRAM** and the three-letter airport ID. When these entries have been made, the user is finished with making entries for Manual Plotting.

2.4.2.4.2. Automatic Plotting.

The automatic plotting procedure will be used most often for plotting the Freq-data. The user must be in the **WIND-UTILS** directory and then enter **AUTO-PLOT** to begin the automatic plotting.

After AUTO-PLOT has been entered, the following announcement is displayed:

```
::::::::::::::::::::::::::::::::::::::::::::::::
::::::::::::::::          ::::::::::::::::::::::
::::::::::                        ::::::::::::::
:::::     AUTOMATIC   PLOTTING      :::::
::::::::::                        ::::::::::::::
::::::::::::::::          ::::::::::::::::::::::
::::::::::::::::::::::::::::::::::::::::::::::::
```

The automatic plotting program will determine the number of airports that were copied, processed, and cleaned up. Then it will determine the three-letter airport ID(s) which identify the specific airport data to be plotted.

When all determinations have been made, the following message is displayed:

```
Creation of the file for   ***   is being done.
```

The previous message will be displayed when the program creates the command file for the given airport (***). Each command file will control the plotting for an airport and will complete the plotting for all products.

When each airport's data is finished plotting, the following message will be displayed:

```
***      is finished PLOTTING.
```

After the plotting is complete, the procedure will delete all unneeded files. A prompt will be displayed asking the user if file deletions should be confirmed. If Y is entered, the user will confirm each deletion by entering Yes (Y) or No (N). If Y is not entered, all files will be deleted.

This completes the automatic plotting and the $ prompt is returned for the user.

2.4.3 Fairchild N-Station Procedures.

2.4.3.1. Copying Procedure.

The loading procedure for the N-station sites will operate only for Denver (DEN) and New Orleans (MSY). The user must be logged onto the MicroVAX II system to utilize this procedure and make necessary entries.

The user must enter **N-LOAD** to begin the procedure and when the procedure is initialized, it checks for available free blocks on the RA81 hard disk and determines if the number of free blocks is satisfactory or unsatisfactory. When the determination is satisfactory, the following statement is displayed:

```
THIS PROGRAM IS FOR THE MOUNTING AND COPYING
OF THE N-STATION TK50 DATA TAPE.

What is the three letter ID of the airport you are loading???
```

If the determination is unsatisfactory, the following error message will be displayed and the user is exited from the procedure:

```
The amount of FREE blocks available to the user
has been depleted below the minimum safety level.
Therefore the N-station DUMP procedure will be
exited and not allowed until more FREE blocks are available.

The number of FREE blocks currently available is:
  --a number--

The minimum safety level is currently set at 200,000 blocks.
```

After a satisfactory determination is made, the user will enter the three-letter airport ID (i.e., DEN or MSY). If the user enters the wrong ID, an error message is given and the user is asked to try again.

Next the ID is entered; the user is asked the following question:

```
HAS THE TK50 BEEN INSERTED INTO THE TAPE DRIVE?  Y/N
```

When the TK50 has been inserted and the user answers Yes (Y) to the previous question, mounting of the TK50 is initiated along with the display of the following message:

```
MOUNTING THE TK50 HAS BEGUN !!
```

After the TK50 has been mounted, copying of the data onto the RA81 hard disk will begin. At this point, all data entry prompts should be ignored until the dump done message is displayed. The length of time it will take to copy the data will depend upon the quantity of data on the TK50. This cannot be generally approximated. The user does not need to remain at the terminal during the copying process and is welcome to do other tasks while the process is undergoing completion. When the copying process is finished, the following message is displayed:

```
THE TK50 HAS BEEN READ SUCCESSFULLY;
THE DATA IS IN THE WIND-DATA DIRECTORY
AND IS READY TO BE PROCESSED.


THE TK50 WILL NOW BE DISMOUNTED FOR YOU.
PLEASE WAIT FOR THE GREEN LIGHT TO BE ON
STEADY AND THE RED LIGHT TO BE OFF.
```

The loading procedure is now finished and the user may proceed with processing the data using the Processing Procedure (section 2.4.3.2).

2.4.3.2. Processing Procedure.

The user must enter **WIND-UTILS** to get into the correct directory and **NIGHT-N** to begin the procedure. After NIGHT-N has been entered, the following question will be displayed:

```
HAS THE DATA BEEN LOADED ONTO THE HARD DISK?  Y/N
```

When the user answers yes to the above question, the following announcement is displayed:

```
This program is to be used for processing N-station data only.

Please note that this includes DEN or MSY.
```

After the above message, the program will determine which airport data were loaded and needs to be processed, then the following question will be displayed:

```
What is the start year of the data?  (88-89)
```

After the year is entered, the program proceeds with submitting the data as a batch job on the system.

If Denver data was submitted, the following message will be displayed:

```
The N-station data from Denver will begin processing
at 8:00 pm tonight.
Please notice that you will get your results tomorrow.
```

If New Orleans data was submitted, the following message will be displayed:

```
The N-station data from New Orleans will begin processing
at 8:00 pm tonight.
Please notice that you will get your results tomorrow.
```

When the submittal of the data has been completed, the procedure is exited and the user is finished with this procedure. The $ prompt will be returned and the user may continue.

2.4.3.3 Cleanup Procedure.

The cleanup procedure for the N-station processing will be done using the procedure in section 2.4.2.3. For further information, please refer to section 2.4.2.3 and follow the prescribed steps.

2.4.3.4 Plotting Procedure.

The plotting procedure for the N-station processing will be done using the Manual Plotting procedure in section 2.4.2.4.1 . [**NOTE:** The user must understand that there will be **NO** data to plot the **SECTOR-ALARM-HISTOGRAM** and the **ALARM-BREAKDOWN-HISTOGRAM**. **DO NOT** plot either one of these products for the N-station sites.]

2.5 ARCHIVAL.

The TK50 magnetic tapes are stored in the wood storage boxes in the metal cabinets which are located in the LLWAS laboratory. The tapes are placed in the wood storage boxes in alphabetical order according to three-letter airport identifications and the tapes will be archived for a certain length of time according to established requirements of the data recording, collection, and processing task.