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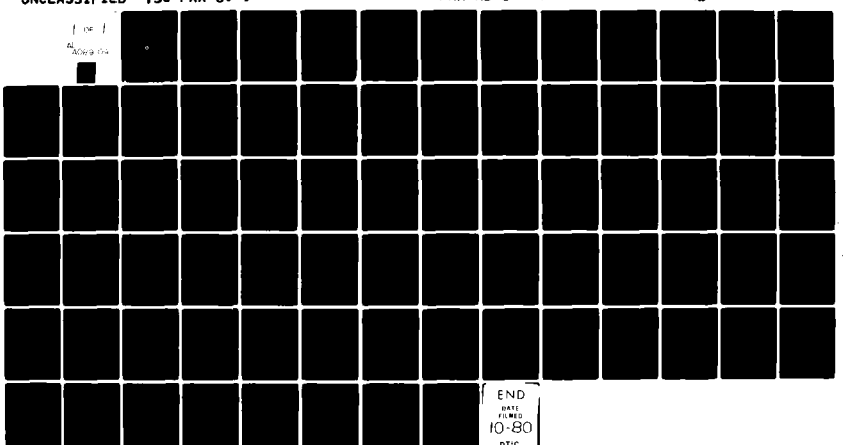

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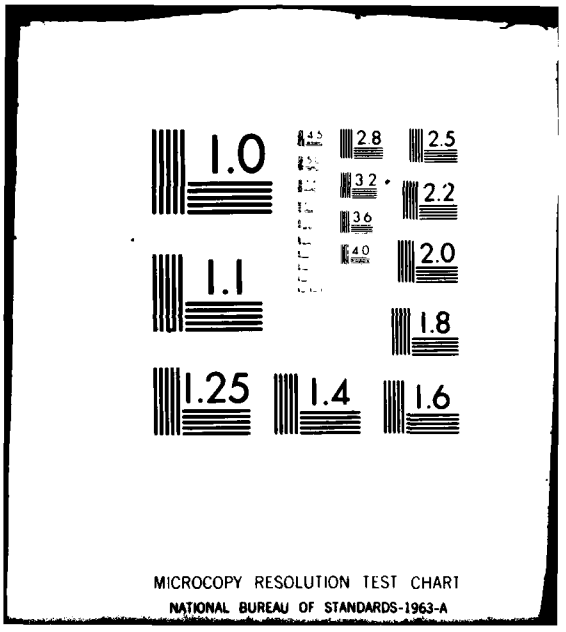
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NATIONAL BUREAU OF STANDARDS-1963-A

REPORT NO. FAA-RD-80-76

LEVEL II

13

P.S.

VOICE RESPONSE SYSTEM STATISTICS PROGRAM
Operational Handbook

Irwin Englander

U.S. DEPARTMENT OF TRANSPORTATION
RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION
Transportation Systems Center
Cambridge MA 02142

JUNE 1980

FINAL REPORT

Prepared for

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Systems Research and Development Service
Washington DC 20591

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16. Abstract

This report documents the Voice Response System (VRS) Statistics Program developed for the preflight weather briefing VRS. It describes the VRS statistical report format and contents, the software program structure, and the program operation.

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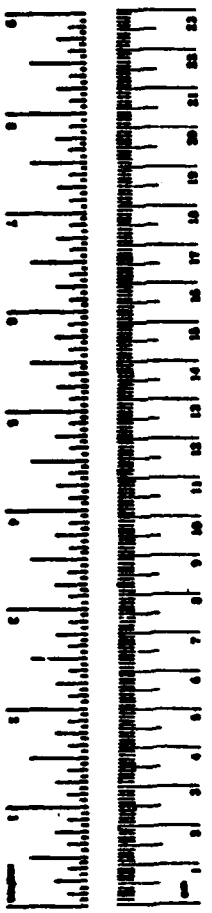
PREFACE

The VRS statistics program was developed by the Transportation Systems Center under the guidance of the Federal Aviation Administration sponsors, C. Weigel and V. Costantino. The preflight weather briefing VRS software and VRDATA.DAT file were developed under contract by Input Output Computer Services (IOCS), Waltham MA.

METRIC CONVERSION FACTORS

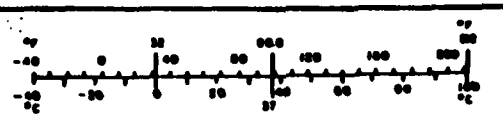
Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
	inches	2.5	centimeters	
	feet	30	centimeters	
	yards	0.9	meters	
	miles	1.6	kilometers	
		AREA		
	square inches	6.5	square centimeters	
	square feet	0.09	square meters	
	square yards	0.8	square meters	
	square miles	2.6	square kilometers	
	acres	0.4	hectares	
		MASS (weight)		
	ounces	28	grams	
	pounds	0.45	kilograms	
	short tons (2000 lb)	0.9	tonnes	
		VOLUME		
	teaspoons	5	milliliters	
	tablespoons	15	milliliters	
	fluid ounces	30	milliliters	
	cups	0.24	liters	
	pints	0.47	liters	
	quarts	0.95	liters	
	gallons	3.8	liters	
	cubic feet	0.03	cubic meters	
	cubic yards	0.76	cubic meters	
		TEMPERATURE (exact)		
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C



Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
	millimeters	0.04	inches	
	centimeters	0.4	inches	
	meters	3.3	feet	
	meters	1.1	yards	
	kilometers	0.6	miles	
		AREA		
	square centimeters	0.16	square inches	
	square meters	1.2	square yards	
	square kilometers	0.4	square miles	
	hectares (10,000 m^2)	2.5	acres	
		MASS (weight)		
	grams	0.035	ounces	
	kilograms	2.2	pounds	
	tonnes (1000 kg)	1.1	short tons	
		VOLUME		
	milliliters	0.03	fluid ounces	
	liters	2.1	pints	
	liters	1.06	quarts	
	liters	0.26	gallons	
	cubic meters	35	cubic feet	
	cubic meters	1.3	cubic yards	
		TEMPERATURE (exact)		
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



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1. INTRODUCTION

An automated preflight weather briefing voice response system (VRS) developed by the Transportation Systems Center[1] is currently undergoing continuous operational testing and evaluation by the aviation community in the Washington DC and Columbus OH areas. During each VRS operating day, raw statistical data is stored in a file named VRDATA.DAT. This file is the basis of the statistical report. A description of the VRS statistical program and the report is presented in the following sections.

2. VRS STATISTICAL REPORT DESCRIPTION

The VRS statistical report consists of 3 parts: the header, the user report, and the daily summary. Each will be described below.

2.1 THE HEADER

The header page is always printed regardless of the output option selected. It contains the following information:

Minimum Channel No. - a 2 digit number between 00 and 20
Maximum Channel No. - same as above.
Start Point of File:

Start Date - year, month, date (YY MM DD)
Block No. - starting data block
Byte Offset - starting data byte within the starting block
Time - minutes since midnight (GMT)

End Point of File:

Finish Data - year, month, day (YY MM DD)
Block No. - last data block
Byte No. - last data byte within the last data block
Time - minutes since midnight (GMT)

2.2 USER REPORT

The User Report has 1 line per user. There are 18 columns, divided into 5 groups. The first group has 1 column, GMT time. This is the time of the user channel disconnect.

Group 2 has 4 columns, each of which is a count of user requests. Column LOC is a count of location identifiers entered. Column SA is a count of Hourly Surface Observation (SA) reports requested. Column FT is a count of Terminal Forecast (FT) reports requested. Column GF is a count of winds alofts (GF) reports requested.

Group 3 has 6 columns and shows the allocation of user time. Column TIME shows the total time allocated to the user. Column OVER shows the time allocated to overhead. Column LOC shows the time allocated to entering location identifiers. This is from user entry of the first letter until the message is sent to the PDP 11-70 and accepted by the PDP 11-70. Column SA is the time from the SA request until all SA's have been spoken. Column FT is the time from a request for FT reports until all FT reports are spoken. Column GF is the time from the GF request until all the GF reports are spoken.

Group 4 has 6 columns, which contain the counts of how many times the user used the special functions.

Special Functions

Title	Function
Stop	Stop voice output
Go	Proceed with voice output
RPT	Repeat prompt or current report
DEL	Cancel last user entry
JMP	Jump to next report
BEG	Recycle to beginning of briefing.

The last column, which is labelled, LOC ID REQUESTED contains a list of location identifiers entered by the user during the last pass through the briefing.

2.3 SUMMARY REPORT

The fourth report type is a summary of the day's activity. The first column is the hour in GMT. The second column is the number of users during the hour. The third column is the average time used by each user. The fourth column is the maximum number of simultaneous users during the hour.

Below this is the total number of users. This is after deleting users who merely called in then hung up.

The average time is the total time by all users, divided by the number of users. Next is the maximum number of simultaneous users for the entire day.

The fractional percentages are found by summing the times for all users and dividing the time for each purpose by the total time users were on the system. OVHR is the percentage of time allocated to overhead (i.e., the system is neither accepting user inputs nor responding to user requests. It is derived from the column OVER in the User Report. Similarly LOCID is derived from the LOC values, and SA, FT, GF from their corresponding values in the User Report.

The last part of the daily summary report contains a list of all location identifiers requested and the request counts.

3. ANALYSIS OF THE VRS STATISTICAL FILE

During each VRS operating day, a statistics file* is maintained (see Appendix A). In block 0 of the file is the starting date and time in seconds and the finishing data and time in seconds. The first page of the statistical report contains these data as date and time in minutes for identification (see Appendix B).

The remainder of the file contains event records and these are used for analysis. The record definition appears in Table 3-1. The event records are subdivided into groups based on channel number. The events records are in chronological order. User records are defined as all those records for a channel which are between a channel ringing record and the first channel disconnect record inclusive. Specifically, the channel ringing is when the low-order byte of US.FLG** equals 5, and the channel disconnect is when the low-order byte of US.FLG equals 6 (Tables 3-2, 3-3). The statistics for each user is put on one line of the report. However, any user whose second event is channel disconnect is not recorded in the statistics.

Using the user data, the gross statistics are computed. The time of day in column 1 is the GMT time on the event record channel disconnect. The briefing time in column 6 is the difference in time between the time of day on the channel ringing event and the channel disconnect event.

In order to get the counts in columns 2 through 5, each user's records are divided into passes. A pass consists of 2 phases, (1) a location identifier entering phase and (2) a report requesting phase.

TABLE 3-1. FILE VRDATA.DAT RECORD FORMAT

Word	Byte	Contents
1		Recorder Header (contains the value -16)
2	3	Length in bytes of the variable data record
3	5	Channel Number being recorded (U.S. CHN)
4		Line Status (US.STA)
5	10	Current state of the protocol (US.KEY)
6	11,12	User's Current Status (US.FLG)
7	13,14	Additional status information (US.PER)
8	15,16	Low-Order Time since midnight in seconds
9	17,20	High-Order Time since midnight
10+	21+	Variable data record (length given in word 2)

The location identifier count in column 2 is done in two parts. First, the location identifier entering phase is checked to locate the record which has the greatest location identifier count. This becomes the location identifier count for that pass through the briefing. Then the location identifer counts for each pass are summed up for the user to arrive at the total location identifier count for the user in column 2. The location identifier input phase is defined by the high-order byte of US.KEY being either equal to 1 (EOCID) or 5 (NXTLOC).

The report type count is computed for each briefing pass by checking the high-order byte of US.KEY. If a report is requested during that pass (i.e., US.KEY byte value equals 15 for SA's, 17 for FT's, 20 for GF's) the number of reports of that type requested for that pass equals the number of location identifiers entered that pass. This is then summed over the passes for that user and entered in columns 3, 4 and 5. Use of the REPEAT function may lead to getting multiple report counts in 1 pass.

---

1. Twenty Channel Voice Response System, Input Output Computer Services, Inc., Final Report.

*Section 2.3.2, contains a description of the statistics file (VRDATA.DAT). Appendix B also provides a partial dump of file VRDATA.DAT.

**Refer to Tables 3-2 and 3-3 for definition of U.S.KEY and US.FLG values respectively.

TABLE 3-2. US.KEY (HIGH-ORDER BYTE)

Value (Octal)	Flag Word
0	HELLO
1	LOCID
2	BRIEF
3	WHATBR
4	BRIEF2
5	NXTLOC
6	POUND
7	COMPLI
10	RPTYP
11	HOURS
12	ALTI
13	MORE
14	NOTAM
15	SUROVB (SA's)
16	PIREPS
17	TERMFC (FT's)
20	WINDS (GF's)
21	PHOURS
22	PALTI
23	PSYN
24	WARN
25	LATOBS
26	FORCAS
27	WINDAL
30	EHOURS
31	EALTI
32	ENROUT
33	ENALT
34	ENETA

TABLE 3-3. US.FLG (LOW-ORDER BYTE)

Value (Octal)	
1	# sign indicator
2	* indicator
3	Talk mode indicator
4	Invalid keystroke
5	Channel ringing indicator
6	Channel disconnect indicator
7	YES response
10	NO response
11	Return to interrupted code
12	Briefing return
13	Repeat last message unit
14	Cancel last input
15	Proceed with speaking
16	Stop present activity.

TABLE 3-3. US.FLG (HIGH-ORDER BYTE) (CONTINUED)

Value (Octal)	Meaning
1	Enable Data Set
2	Numeric Input Expected
4	Cycle to Next DAP Value
10	Echo Input Flag
20	Phonetic Echo
40	Do Not Enable Data Set
100	Speak Done Indicator
200	Echo Done Indicator

The allocation of time to overhead, location, SA, FT and GF are allocated by use of the high-order byte of US.KEY. When 2 consecutive records for 1 user have different US.KEY values the time between them is allocated to the second record US.KEY value. For this purpose: (1) US.KEY values 1 (LOCID) and 5 (NXTLOC) are considered equal; (2) US.KEY values 20 (GF), 21 (PHOURS) and 22 (PALTI) are GF reports, and (3) US.KEY values 2 (BRIEF) and 4 (BRIEF2) are assigned to the report request preceding them.

An example of assigning US.KEY values BRIEF and BRIEF2. If there are 3 consecutive records for 1 user and the first US.KEY value is 15 (SA), the second record 2 (BRIEF) and the third record 4(BRIEF2), the routine assumes all US.KEY values are 15 (SA).

Columns 11 through 15 contain counts of the special functions. As each record is processed, the lower-order byte of US.STA is checked (Table 3-4). If the byte has a value from 42 to 50 octal, it is processed by incrementing the counter for that special function.

TABLE 3-4. SPECIAL FUNCTION CODES (US.STA - LOW-ORDER BYTE)

Function	Octal Valve	Explanation
Stop	42	Briefing stopped by user
Go	43	Briefing restarted by user
Begin	44	Recycle to beginning of protocol
Repeat	45	Briefing repeated by user
Jump	46	Report skipped by user
Delete	50	Cancel last entry

4. PROGRAM STRUCTURE

The routines used in this VRS statistics program may be divided into 7 groups (see Appendix C). The first group consists only of the main program which has 2 functions: (1) to screen out data based on channel number and option,* and (2) to call the other routines of the program.

The second group is the read group. This program consists of all routines involved in reading the trace file. This group opens the file, locates the starting block and byte, provides 1 record at a time on request and closes the file when the end of file is reached.

The third group is the user group. This group looks for records with channel ringing and channel disconnect status. When a channel ringing record is found, it records the starting time. When a channel disconnect status is found, it stores the time of day, and the connect time. It screens out those users who have only a channel ring-up and a channel disconnect event.

As part of the user group, the count of users for each hour is stored and the maximum number of users per hour is stored.

The fourth group is the locations group. This group looks for records with LOCID and NXTLOC status. It counts for each user the number of location identifiers requested.

Under option 2, it will also store the actual 3 letter location identifier codes requested by the user. Under option 4, it will store the location identifiers and the number of requests for that location for all users for the entire data collection period.

The fifth group is the status group. It checks all records and counts the number of records having a given status.

The sixth group is the time group. This group records the time between 2 specified events. It is done both for individual users and summed up for the day.

The seventh group is the output group. Under option 1, a line is printed for each user. The header and daily summary are always printed.

*Statistical report opitons are described in Section 5.

TITLE: STATA (Figure 4-1)

STATA is the main program and has 3 functions. The first is tc read in a record and make sure the user number of the record is between 1 and 20, inclusive.

The second is to store a copy of the current record and the previous record for each user.

The third function is to call the various processing programs in order. The routines direclty called are:

1. READER: Reads in a record.
2. MINUTE: Converts time in seconds on the record to minutes and tents of minutes.
3. LOCO: Counts location identifiers.
4. MORE: Saves data from all previous passes when there are multiple passes.
5. UMAX: Computes the maximum number of simultaneous users for each hour and for the day.
6. REPORT: Computes the number of weather reports, by type, for each user.
7. STATUS: Counts the number of times each special function is used for each user.
8. TIMER: Computes the user connect time, and the time of day for each user. It also types a line for each user. As part of this routine, an hourly count of users and their total connect time are accumulated.
9. SUMMARY: Computes the total number of users for the day and the average connect time. It then prints the daily summary.
10. COUNT: Computes a matrix counting the number of records. The columns are DAP KEYS from US.KEY and the rows are flags from the low-order of US.FLG.
11. KEYY: Counts the total number of users and the total number of users who hang up before requesting a report.

The routines not directly called are:

12. OPENEN
13. INIT
14. CLOSER
15. READS
16. START
17. FINISH
18. BATCH CHECK
19. TYPEN
20. LOCAT
21. LOCU
22. ERROR

TITLE: STATA

Read a record using routine READER.

Is there an end of file?

Then:	Else:	
Call routine summary	Is the user number	between 1-20
STOP	Then:	Else:
	Call MINUTE	Go to beg.
	Call LOCO	
	Call MORE	
	Call UMAX	
	Call REPORT	
	Call KEYT	
	Call STATUS	
	Call TIMER	
	Go to beginning	

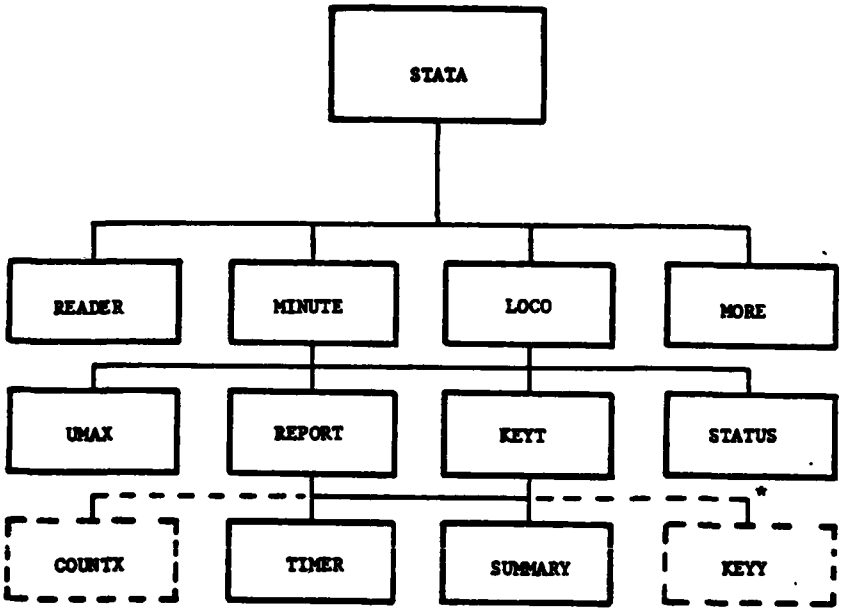

FIGURE 4-1. MAIN PROGRAM AND DIRECTLY CALLED PROGRAMS

TITLE: READER (Figure 4-2)

READER is the routine which handles the interface with the data file and provides the data 1 record at a time to routine STATA. On the first request for a record, the file is opened using routine OPENER.

Then routine INIT reads in block 0. In block 0 is the starting point and the ending point for trace data. Routine INIT passes on to READER the last block and the last word, which will be used to set the end of file check. It uses routine READS to read in the first block of valid data and sets the word pointer to the first data word.

In all read requests, the program reads in a record from the buffer. Since the records have variable lengths, this must be done in 2 steps. In step 1, 4 bytes are read in. Then routine ERROR checks to insure the record is valid. If it is not valid, then the ERROR routine sets the word pointer and returns. If there is no error, then the record length is set to 14 plus the contents of byte 3 and the remainder of the record is read in from the buffer using routine READS. It is the remainder of the record which is transferred to routine STATA.

TITLE: READER

Is this block zero?

Then:	Else:
Call OPENER Call INIT	

BEG

Set byte count to 4
Call READS
Call ERROR

Is there a reading error?

Then:	Else:
Return to BEG	Word count = 14+ contents byte 3 Call READS Is this an end of file?
	Then: Set EOF INDICATOR Call CLOSER

RETURN

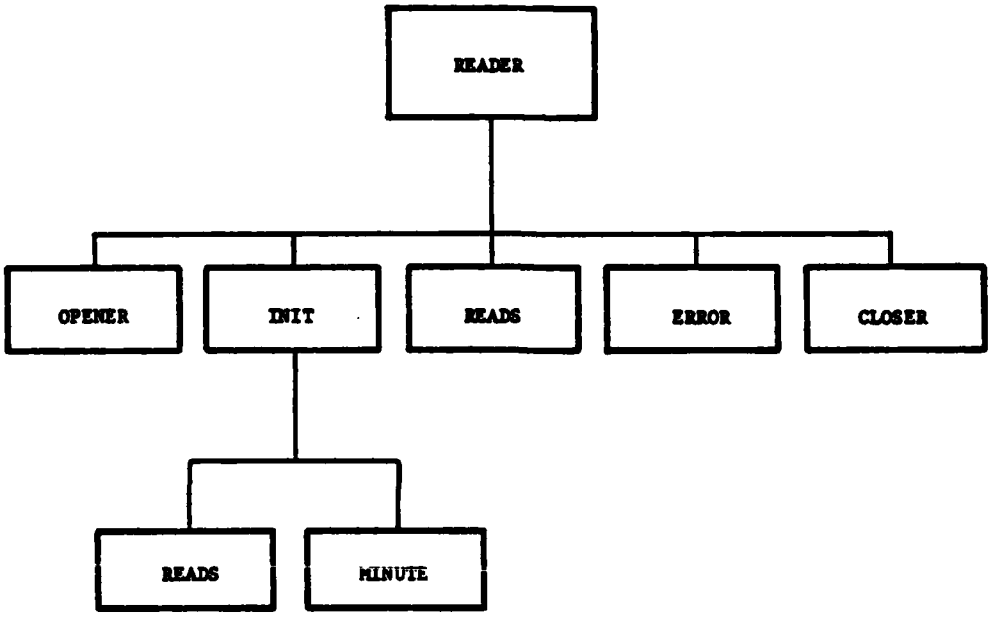

FIGURE 4-2. PROGRAMS USED TO READ THE RAW DATA FILE

TITLE: MINUTE

In each record, words 8 and 9 contain the time in seconds. This requires 17 bits. Word 8 contains the lower 16 bits and word 9 contains the seventeenth bit as bit 0 of the ninth word. The program shifts the bits 2 positions right (division by 4) and then multiplies the result by 4/60 to convert to minutes. The result is placed in the word TIME.

TITLE: MINUTE

Cur6 - Current record word 8

Cur7 - Current word 9

TIME - Time in minutes; set to 0

Is cur7 bit zero set to 1?

Then:	Else:
Set bit 12 of TIME to 1	

Do while, I goes from 6 to 15?

Is cur6 bit I set to 1?

Then:	Else:
Set TIME bit (I-5) to 1	

RETURN

TITLE: LOCO (Figure 4-3)

This routine counts the number of location identifiers entered by the user. The number of locations count is not recorded in the raw statistics directly and so the following method was chosen. Each record contains the last ASCII message sent to the PDP 11/70. Therefore, a search will be made for the ASCII messages which contain the location identifiers and a count will be made.

The criteria for the record search is that the high-order US.KEY byte is 1 (LOCID) or 5 (NXTLOC) and that the ASCII text have a "PM" following the user number.

The search begins 2 bytes beyond the "P". The first test is that there be 3 letters (a possible location). The count of locations is incremented by 1 if the test is passed. The second test is to check if the 3 letters are followed by a slash. All locations except the last on this message must have a slash following the location code. Thus, the location count is terminated when the slash test fails.

Under option 2, the actual 3 letter codes will be stored for each user. Under option 4, LOCAT is called to store a daily summary of the location identifiers and the number of users requesting that location.

TITLE: LOCO

IRE(16) the high-order byte of US.KEY.

Count (IUSER) count for user

Is IRE(16) equal to 5 or 1?

Then:

Is byte (16) equal to P and byte (17) equal to M

Then:

77 Are the bytes equal to three letters?

Else;

Count = Count + 1

Else:

Is the next character a 'y'?

Then:

Go to 77

Else:

Else:

RETURN

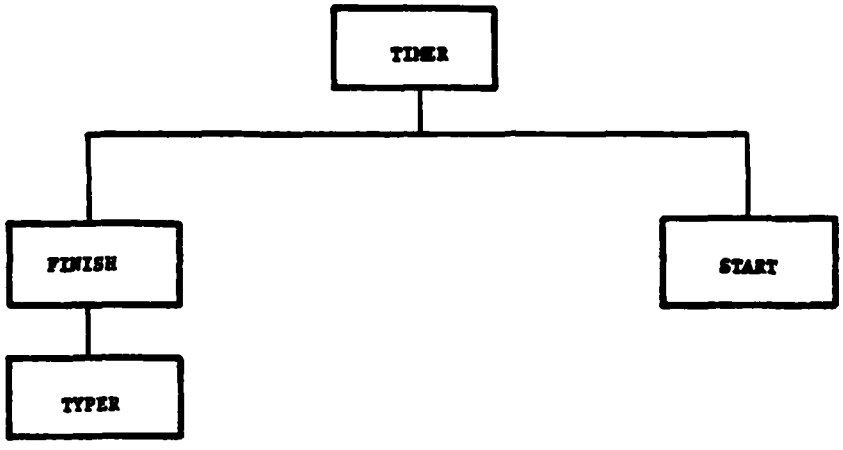

FIGURE 4-3. ALL ROUTINES WHICH DETERMINE WHEN A USER HAS LOGGED ON AN OFF

TITLE: MORE

Routine MORE produces 3 location requested counts: (1) locations requested by each user, (2) locations requested by each user for each briefing pass, and (3) locations requested by each user during the current pass. A pass consists of an input of locations followed by a request for reports.

The inputs to this program are a user number, a location count, the high-order byte of US.KEY and the lower-order byte of US.FLG. The output is the total number of locations requested by each user for the output routine TYPER, and the number of locations for this pass to the report counter routine REPORT.

When a record is to be processed, the first thing to be tested is the US.FLG byte. If it indicates a new user (value equals 5), then all counts are set to 0 and the new pass indicator is set to 0. The routine is then exited.

Next the US.KEY byte is checked. If it indicates reports are being requested (value greater than 5), the total locations requested is set equal to the sum of the total number of locations entered in previous passes plus the number of locations entered in this pass. The new pass indicator is set equal to 1 and the routine exited.

Next the US.KEY byte is checked for 1 (LOCID) or 5 (NXTLOC). If it is neither of these, the routine exits. If it is either of these, the new pass indicator is checked.

If the new pass indicator is 0, the count for this record is compared to the count for this pass and the larger value is entered in the count for this pass. Then the routine is exited.

If the new pass indicator is 1 then a new pass is starting. Hence the count for current pass is added to the count for previous passes, the count for this pass is set to the count for this record and the new pass indicator is set to 0. Then the routine is exited.

TITLE: MORE

IUSER - User channel number

COUNT - Count of locations, latest count for user

COUNTL - Maximum count for this pass and this user

COUNTM - Sum of maximum counts for all previous passes

Has US.KEY returned to 5 (NXTLOC)

Then:	Else:
COUNTL = COUNTL - 1 COUNTM COUNTL = 0	
	RETURN

TITLE: UMAX

Routine UMAX computes the maximum number of simultaneous users for each hour. The inputs are the user, the time, and the low-order byte of US.FLG.

When a record has a US.FLG value (low-order byte) of 5, a check is made of the user channel active indicator. If the indicator is clear, the user count is incremented by 1.

When a record has a US.FLG value of 6, a check is made of the user channel active indicator. If the indicator is set, the user count is decremented by 1 and the user channel active indicator is cleared.

In all cases, the current count is compared with the maximum count for the hour and the maximum count is adjusted if required.

TITLE: REPORT

This routine counts the number of reports by type and user.

If a record has a 5 in the low-order byte of US.FLG (channel ringing), the counts for that user is set to 0.

If the US.KEY high-order byte indicates a report type, the count for that report type and that user is incremented by the location count for that user and the current pass.

TITLE: REPORT

COUNTL	Current pass location count
IUSER	User
SAI	SA count for each user
FTI	FT count for each user
FDI	GF count for each user

Is US.FLG low-order byte 5?

Then:	Else:		
SAI (IUSER) = 0 FTI (IUSER) = 0 FDI (IUSER) = 0	Is US.KEY high-order byte = 15		
	Then: INCREMENT SAI	Else: Is US.KEY = 17	
		Then: INCREMENT FTI	Else Is US.KEY = 20
			Then: INCREMENT FDI
			Else:

RETURN

TITLE: STATUS

Routine STATUS checks the status byte to determine the status command requested by the user. A count of commands are collected and as part of the output there is a list of status commands and how often they were requested.

TITLE: TIMER (Figure 4-4)

Routine TIMER is used to decide whether a user is to be counted in the statistics. Currently, there are 2 criteria: (1) the user must have a channel ringing and a channel disconnect event, and (2) the user must have 1 other event.

Every time a channel ringing event occurs, routine START is called to initialize the channel.

Every time a channel disconnect is encountered, a check is made as whether to count this user. Current criteria are: (1) the channel must be active, and (2) there must be at least 1 event between the channel ringing and channel disconnect events. If the criteria are met, then routine FINISH is called.

Routine START sets the user start time to the current time and sets the channel active indicator.

Routine FINISH computes time active as current time minus start time. It then calls routine TYPER to print a line.

TITLE: TIMER

Is low-order byte of US.FLG equal to 5?

Then:	Else:
Call START	Is US.FLG equal to 6?
	Then: Call FINISH / Else:

RETURN

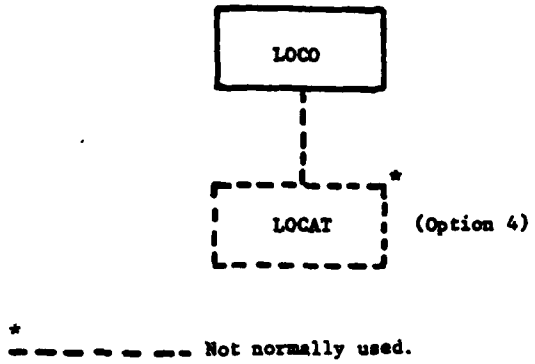

FIGURE 4-4. LOCATION-ORIENTED OPTIONS

TITLE: SUMMARY

This routine is called by the main program when file processing is complete. It prints hourly statistics, followed by daily statistics. The hourly statistics are the number of users, the average time a user is on the line, and the maximum number of simultaneous users. The daily statistics are total number of users, the average user time, and the maximum number of simultaneous users. Further there is a breakdown of how the user time is used.

When option 4 is used, a listing of the location identifiers and times called is produced.

TITLE: COUNTX

This routine sets up a 2 dimensional count array where 1 subscript is the high-order byte of US.KEY and the other subscript is the lower-byte of US.FLG. When a record is read, the US.FLG byte is checked. If the value is 6 and the last value of US.FLG for that user is 5 or 6, the record is not counted. If the value is 5 and the last US.FLG for that user was 5 the record is not counted. In any other case, the count array is incremented by 1.

After doing the count, the current value of the US.FLG byte is stored in the flag array for that user and the type routine is executed.

The type routine provides for a typing of all non-zero elements of the count array at the end of each hour of VRS operations.

TITLE: COUNTX

INPUT:	Cur6	US.KEY high-order byte
	Cur7	US.FLG low-order byte
	Time	VRS Time
	IUSER	User channel

Is Cur7 and FLG (IUSER) both 6?

Then:	Else:		
	Is Cur7 equal to 6 and FLG (ISUER) equal to 5?		
	Then:	Else:	
		Is Cur7 equal 5 and FLG (IUSER) equal 5?	
		Then:	Else:
			Increment Counter
			(Cur6, Cur7)

FLG (IUSER) = Cur7

RETURN

TITLE: KEYY

This routine is a diagnostic tool which reads each event record and makes event counts (Table 4-1). The terms used are: active (having a user on the channel) and inactive (having no user on the channel).

First each event is checked to determine whether the event is activation of a channel or the deactivation of a channel. If it is either, a counter is incremented.

Next the channel's prior status is checked to see if it was active. If it was not, then the following checks are made. First, a check is made to determine whether the channel is cleared. If it is not, counter 7 is incremented. Second, is the channel being activated? If it is, then counter one is incremented.

If the channel was previously activated, the following checks are made. Is the active channel being activated? If it is, then counter four is incremented. Next a check is made to determine whether the channel is being deactivated. If it is being deactivated, the following checks are made. Were any locations entered? If not, then counter five is incremented. Were any reports requested? If not, then counter 2 is incremented.

TABLE 4-1. TEST TABLE

Counter	Current Event	Status	Previous Event	Kev*
1	activation	inactive	-	IREC7 = 5
2	deactivation	active	-	KEYM = 5
3	activation	-	-	IREC7 = 5
4	activation	motive	-	IREC7 = 5
5	deactivation	motive	activation	JREC = 5
6	inactivation	-	-	IREC7 = 6
7	inactivation	channel not cleared	-	IREC6 = 0
IREC7		Low-order byte, US.FLG		
IREC6		High-order byte, US.KEY		
JREC		Previous value of IREC7		
KEYM		Maximum value IREC6		

*Key is for each user.

TITLE: OPENER

This routine calls on library routines to open the disc file. If in any step an error occurs or there is no room for this input, the program stops.

Routine ICHAN allocates a channel.

Routine LOOKUP opens the file, allocates buffer space and sets the buffer pointer at the start of the file.

TITLE: INIT

This routine is called routine READER after the data file is open. Using routine READS it reads in block 0. It then decodes the control data and types it out. In word 1 is the date when the file was initiated. In word 2 is the low-order bits of time and in word 3 the high-order time bits. In word 4 is the starting block number (usually block 1) and in word 5 the specific starting byte offset (usually 0). The next 5 words have the data for the file end. Word 6 has the date, word 7 and word 8 the time, word 9 the block number and word 10 the byte offset.

Under option 8 the user may input a new starting block and a new starting byte offset. Inputing block 1, byte 0 is the same as option 0.

TITLE: INIT

Extract bits from the word 1:

Bits (4-0) plus 72 equal the year

Bits (9-5) equal the day of month

Bits (14-10) equal the month

Extract bits from word 6:

Bits (4-0) plus 72 equal year

Bits (9-5) equal day of month

Bits (14-10) equal the month

Convert time in words 2 and 3 (time in seconds) to time in minutes using routine MINUTES.

Print results.

Is this option 8?

Then:	Else
Input block and byte offset from Terminal in (I4) format.	
RETURN	

TITLE: CLOSER

This routine calls on library routines to close and free the channel.

CLOSE closes the channel.

IFREEC frees the channel.

TITLE: READS

This routine manages the buffer filling and provides records or parts of records as required. The data on the disc are in blocks of 516 bytes. For initialization the buffer pointer is set at 512 and the block counter at 0.

The routine is called to provide a specified number of bytes. If based on the buffer pointer, there are enough bytes remaining in the buffer, the bytes of data are transferred from the buffer to the specified array. Then the buffer pointer is incremented by the number of bytes transferred. Then the routine exits.

If there are two few bytes left in the buffer, then the data in the buffer are transferred to the array and a record made of bytes transferred. Next library routine READW is used to read in a block of 512 bytes. The block count is increment, the buffer pointer is set to the beginning of the buffer and a second data transfer is executed.

TITLE: START

Routine START is called by routine TIMER whenever a channel ringing event occurs. The routine sets the user start time to the time on the event record, and sets the active channel indicator.

Set the start time to the time on the record. Set the active channel indicator.

Return.

TITLE: FINISH

Routine FINISH computes the time a user has been on the system, updates summary statistics, and arranges for the printing of a line for each user.

The first step is to check if there is a bonafid user. This means that the active user for this channel is set and the previous record for this channel did not have a 5 in the low-order byte of US.FLG.

If the record fails the test, the routine is exited. If the test is passed, the time of day is set to the time on the record, the time for this user is computed as the time on the record minus the start time for this channel, the cumulative statistics are updated, and a line is printed.

The cumulative statistics are the number of users for the hour in this record and the total time users are on during the hour in this record. The user count is incremented by 1, while the total time for the hour is incremented by the time of this user.

TITLE: FINISH

Is the active user indicator for this channel set?

Then:		Else:
Was the previous US.FLG equal to 5?		
Then:	Else:	
	Time = record time - start time Total Time = Total time + time User Count = User count + 1 Call TYPER	

TITLE: BREAK CHECK

This routine is called by timer to determine if there was a break in the data input. A break occurs when the time of the last input is more than 60 minutes before the time of the current input. This is done by comparing the input time with the previous input LTIME. In this comparison, special care must be made for the transition from 2300 GMT to 0 GMT.

If a break is found, then all active users are terminated and the counters and indicators for the last hour are reinitiated.

TITLE: BREAK CHECK

TIME Current time

LTIME Previous time

KTIME Time difference

KTIME = TIME - LTIME

Is time less than 60 and KTIME less than 0?

Then:	Else:
KTIME = KTIME + 1440	

Is KTIME greater than 60?

Then:	Else:
ST = -1 KEY = 3 IND = 3	

RETURN

TITLE: TYPER

This routine has data prepared by other routines and stored in global commons. When this routine is called, it types one line based on the type statement and the format. Currently, it types the time of day in minutes, the user briefing time, the user count for the hours, the running average briefing time for the hours, the user number, the number of locations requested by the user and the report types requested by the user.

Type line

RETURN

TITLE: LOCAT

Routine LOCAT is called by routine LOCO. The input is a 3 character location identifier. LOCAT then prepares a list of all the location identifiers inputed by all the users. It also keeps a count of the number of requests for data on each location.

TITLE: LOCAT

NLOC, Number of location identifiers; set NLOC = 0

Read in 3 letter code.

Is NLOC greater than 0?

Then:		Else:
Is the entry a new location identifier?		NLOC = 1 Enter Location Identifier in table
Then: NLOC = NLOC + 1 Enter Number into table	Else:	

RETURN

TITLE: LOCU

This routine sets up an array for each channel. Every time routine LOCO checks a location identification and determines the location it has 3 letters. LOCO calls LOCU which stores the name in that users array. This array is printed every time a line is hung up. Routine TYPER does the printing of the array contained in common ENTS.

TITLE: LOCU

ENT4, number of locations stored for user; set ENT4 = 0.

Read in 3 letter code.

Increment ENT4 for user.

Does ENT4 for user exceed 10?

Then:	Else:
ENT4 for user = 10 Place first letter in ENT (1, ENT4) Place second letter in ENT (2, ENT4) Place third letter in ENT (3, ENT4)	

RETURN

TITLE: ERROR

Routine error checks the first 2 bytes of each new record. If it is the legitimate record start (byte 1 equals minus 1) it allows processing. If it is not legitimate the file is searched for the first 2 bytes which indicate the record is legitimate.

5. STATISTICS PROGRAM OPERATION

This section contains the procedures for building and running the VRS statistics program. The program requires that the raw data file be named TRACE.DAT. Hence before running the statistics program, rename or copy the data file of interest to TRACE.DAT.

Program Compilation and Task Building (RT11-Version 2)

A. Program Compilation

```
.R FORTRAN
STATQ = STATQ
STATC = STATC
STATD = STATD
```

B. TASK BUILD COMMAND

```
.R LINK
STATA = STATQ, STATC, STATD, SYSF4, FORL1B
```

C. OPERATING INSTRUCTIONS

1. Enter on terminal:

   .R STATA (Run Program STATA)

2. Enter 2-digit option number (Table 5-1).
3. For options 8 through 15, type block and byte numbers, each in I4 format (e.g., for block 100, byte 52: 0100 0052).
4. Enter a 2 digit minimum channel number between 01 and 20.
5. Enter a 2 digit maximum channel number between 01 and 20.
6. The program then outputs the statistical report according to the options selected by the user.

TABLE 5-1. OPTION TABLE

Option*	Action
0	Print summary only
1	Print a line for each user
2	Store location codes for each user
4	Print location ID and demand
8	Manual control of starting block

*A combination of options can be requested by adding option codes.

APPENDIX A - SAMPLE VRDATA.DAT FILE (PARTIAL DUMP - 1ST 3 BLOCKS)

```
DKU:TRACF.DAT
BLOCK NUMBER  00000 (Header Block)
000/ 004710 164354 000000 000001 000000 004750 113401 000000 *H.LH......H.....*
020/ 000356 000406 000000 000000 000000 000000 000000 000000 *N..............*
040/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
060/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
100/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
120/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
140/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
160/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
200/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
220/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
240/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
260/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
300/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
320/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
340/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
360/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
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420/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
440/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
460/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
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640/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
660/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
700/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
720/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
740/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
760/ 000000 000000 000000 000000 000000 000000 000000 000000 *................*
```

```
BLOCK NUMBER  00002
000/ 000000 165026 000000 000063 177762 000014 030401 000011 *...J..3.F....1..*
020/ 002400 050411 000402 165032 000000 050061 026515 051117 *...G...J..1PM-OP*
040/ 020104 023457 000015 177762 000016 030401 000011 000400 *D /'..F....1....*
060/ 040411 000402 165040 000000 051461 022501 021446 000015 *.A.. J..1SA%&*..*
100/ 177762 000014 030401 000041 007400 040006 000412 165103 *R....1!....*..CJ*
120/ 000000 030446 030102 030060 036063 023452 000015 177762 *..&1B0003<*'..F.*
140/ 000014 030401 000041 007400 040011 001412 165105 000000 *...1!....*..EJ..*
160/ 030446 030101 030060 035463 023452 000015 177762 000002 *&1A0003;*'..F...*
200/ 030401 000041 000000 040011 000000 165106 000000 000061 *.1!....*..FJ...1.*
220/ 177762 000010 031002 000011 007400 040411 000402 165114 *R....2.....A..LJ*
240/ 000000 043062 026124 021446 000015 177762 000020 031403 *..2FT,&*..R....3*
260/ 000011 002400 050411 000402 165120 000000 050063 026515 *.....G...PJ..3P%-*
300/ 044120 027530 043104 036527 025467 000015 177762 000016 *$PX/DF=7*..F...*
320/ 031403 000011 011000 045411 000402 165167 000000 043063 *.3.....R..%J..3F*
340/ 026504 026462 034463 022460 024457 000015 177762 000002 *E0=2=3$0*/)..R...*
360/ 030401 000040 000000 040005 000600 165241 000000 000061 *.1 ....F..!J...1.*
400/ 177762 000014 030000 000041 010000 040006 000412 165242 *R....0!....*..*J*
420/ 000000 030046 030102 030460 034460 023452 000015 177762 *..&0H0010$*'..F..*
440/ 000014 030000 000041 010000 040011 001412 165244 000000 *...0!....*..$J..*
460/ 030046 030101 030460 034060 023452 000015 177762 000002 *&0A0C0(H*'..F...*
500/ 030000 000041 000000 040011 000000 165244 000000 000060 *.0!....*..$J...0.*
520/ 177762 000016 031002 000011 011000 045411 000402 165272 *R....2.....*..:J*
540/ 000000 043062 026504 032062 031455 037460 024456 000015 *..2F0=24=30?.)..*
560/ 177762 000002 033006 000040 000000 040005 000000 165276 *R....6 ....*..>J*
600/ 000000 000066 177762 000002 033407 000040 000000 040005 *..6.R....7 ....*
620/ 000000 165274 000000 000067 177762 000014 031403 000041 *..>J..7.R....3!.*
640/ 005400 040006 000412 165304 000000 031446 030102 030060 *...*..DJ..&3B000*
660/ 020065 023453 000015 177762 000014 031403 000041 005400 *5 +'..R....3!...*
700/ 040011 001412 165306 000000 031446 030101 030060 037465 *.*..FJ..&3A0005?*
720/ 023452 000015 177762 000002 031403 000041 000000 040011 **'..R....3!....*
740/ 000000 165306 000000 000063 177762 000020 030401 000011 *..FJ..3.R....1..*
760/ 002400 050411 000402 165307 000000 050061 026515 054523 *...G..GJ..1PM-SY*
```

IDENTITY CODES AND REQUEST COUNTS

LOC	COUNT	LOC	COUNT	LOC	COUNT	LOC	COUNT	LOC	COUNT	LOC	COUNT
IAD	60	DCA	130	ABQ	11	SAN	5	VRB	6	TPA	15
ORD	14	PHX	10	DFW	7	SYR	2	CMH	12	BSD	12
MIA	38	HOU	36	HGR	6	PIC	14	CLE	12	MTS	18
EVV	3	STL	17	MKC	4	DDC	3	HAR	13	HFD	1
JFK	53	PSP	12	BIS	2	MLN	1	RDU	12	AGC	11
MDT	6	ADW	8	SLC	4	DAY	17	FWA	10	TOL	7
MIE	2	PHL	4	HPN	1	CVG	6	ZZV	5	LOM	4
CAK	4	BOL	1	MHT	2	ACO	5	GJT	1	GUC	2
JAC	1	PIT	11	BOS	13	MFD	18	PIE	1	PBI	1
SAV	7	JST	1	AUO	2	OPL	4	JAX	13	IAX	47
PSP	5	ICT	16	GCK	2	ALS	1	FMN	1	FHC	1
BLH	1	CHS	4	IND	12	MCF	1	FLO	2	OAB	5
TYS	1	OKF	8	PYM	8	FAY	1	PUB	1	SLN	1
EWR	4	IBL	1	IPT	2	ERI	16	LOU	1	AMA	3
DKC	8	PSK	1	ALB	3	CXY	7	FLL	8	FDY	10
BGM	1	CPW	10	PSM	16	SPA	1	RSA	1	PEE	3
ILG	1	RDG	1	ATL	10	GRI	3	MRB	7	CDC	3
PSC	4	MCP	1	PUB	1	AOS	1	RVD	2	GEF	16
SFO	5	RAP	15	MSN	15	GLD	2	DEN	27	CHU	2
CMA	1	ILM	2	CFL	1	YUG	4	CRE	3	CDW	1
NHZ	1	RCA	6	CMA	7	DAL	14	OMA	4	HUT	1
ERI	1	BUF	3	PGI	1	AGS	3	OAK	1	LAS	2
CKB	4	PKB	3	MOB	2	SRA	1	ECP	1	MCI	2
COS	4	DTW	3	SBN	4	AZO	1	MSY	5	PIA	4
DSM	3	SNY	1	HDN	4	LIT	2	JAN	4	MXF	3
MGM	3	TLH	3	BTL	3	BIX	3	FSD	2	LGB	1
ATY	1	CWI	1	FAR	2	AVL	1	SPI	1	MRO	4
SCK	1	TOP	1	GGG	1	APF	1	BFF	1	GNF	1
DUY	3	SHD	1	SSC	1	HVH	3	GMV	6	SSM	1
FNY	1	TRI	1	HOU	2	RCA	1	OFF	1	DEC	1
SBY	3	AUN	1	MDW	2	PUC	3	ETV	4	JMC	4
HON	1	DAA	1	APN	3	TVC	2	HCA	1	ASE	2
BUR	2	BJT	15	CEZ	1	CWH	1	MRT	1	CLT	2
GSO	1	HCA	1	MWA	1	MPV	1	LGA	9	MKU	2
TEB	2	IUL	2	MBS	1	SAC	4	AVP	1	MWO	2
GNB	1	GFA	1	YYY	1	CAE	2	AGS	1	MLI	1
SLN	5	CID	1	ELM	1	DET	1	DHN	1	IAH	3
MGE	1	ZZZ	4	VNY	4	TYR	1	HZN	3	IMG	1
BOI	1	ZIH	1	LAX	5	LAG	23	CAN	1	JFK	31
ANG	2	DEF	9	GMJ	9	JKL	9	JNK	9	GGG	7
RIA	2	IPL	1	ELP	1	BFL	3	FAT	2	HLV	1
INT	1	RLP	1	CRP	1	MLG	1	HYG	1	GAX	1
ONT	1	OXR	1								

HOUR	USERS	AVG. TIME	SIMUL. USERS
16	13	3.700	6
17	46	4.500	7
18	36	3.500	6
19	59	3.600	8
20	44	4.300	7
21	52	2.900	10
22	43	4.000	6
23	21	3.000	4
0	5	3.800	5
1	14	3.400	5
2	25	4.600	7
3	21	3.500	5
4	21	4.000	4
5	15	6.100	6
6	6	6.200	3
7	5	9.100	2
8	1	5.800	1
9	3	3.700	1
10	9	3.100	3

TOTAL USERS 447 AVG. TIME 3.988 MAX. SIMUL. USERS 10 FOR DAY

FRACTIONAL %

OVHD	21
LOCID	11
SA	27
FT	31
GF	10

```
BLOCK NUMBER  00001 (user data blocks)
000/ 177762 000002 030000 000040 000000 040005 000000 164434 *R....0  ....*...I*
020/ 000000 000060 177762 000014 030000 000011 002400 050411 *..0.R....0.....0*
040/ 000402 164455 000000 050060 026515 040511 024104 023456 *..-I..0PR-1AD(.'*
060/ 000015 177762 000010 030000 000011 006400 040411 000402 *..R....0.....A..*
100/ 164463 000000 051460 022101 021446 000015 177762 000014 *3I..CSA$&*..R....*
120/ 030000 000041 003400 002406 000412 164533 000000 030046 *.0!........[1..&0*
140/ 030102 030060 035463 023452 000015 177762 000014 030000 *B0003;*'..R....0*
160/ 000041 003400 002411 001412 164535 000000 030046 030101 *!........]1..&0A0*
200/ 030060 035063 023452 000015 177762 000002 030000 000041 *0003;*'..R....0!..*
220/ 000000 042411 000000 164535 000000 000060 177762 000002 *...E..]1..0.R....*
240/ 030000 000041 000000 042411 000000 164540 000000 000060 *.0!....E..=1..0.*
260/ 177762 000002 030000 000041 000000 042411 000000 164540 *R....0!....E..=1*
300/ 000000 000060 177762 000002 030000 000040 000000 042405 *..0.R....0  ....E*
320/ 000000 164574 000000 000060 177762 000024 030000 000011 *..\I..0.R....0...*
340/ 002400 050411 000402 164645 000000 050060 026515 041504 *...0..%1..0PR-0C*
360/ 027501 041101 027521 040523 033116 027476 000015 177762 *A/AMO/SAM6>/..R.*
400/ 000010 030000 000011 006400 040411 000402 164653 000000 *...0.....A..+1..*
420/ 051460 022101 021446 000015 177762 000002 030401 000040 *0SA$&*..R....1  .*
440/ 000000 040005 000000 164701 000000 000061 177762 000002 *...3..A1..1.R....*
460/ 031002 000040 000000 040005 000000 164723 000000 000062 *.? ....%..SI..2.*
500/ 177762 000006 030401 000041 000400 054006 000012 164741 *R....1!....X..=1*
520/ 000000 050061 026515 041101 177762 000014 030401 000041 *..1PR-APR....1!..*
540/ 000400 054011 001012 164743 000000 030446 030101 030060 *...X..CI..&1A0000*
560/ 034060 023452 000015 177762 000002 030401 000041 000000 *0H*'..R....1!....*
600/ 054011 000010 164743 000000 000061 177762 000010 030000 *.X..CI..1.R....0*
620/ 000011 007400 040411 000402 164775 000000 043060 025124 *.....A..]1..0PT**
640/ 021446 000015 177762 000020 031002 000011 002400 050411 *&*..R....2.....0*
660/ 000402 164775 000000 050062 026515 051126 027502 050124 *..]1..2PR-VRR/TP*
700/ 035101 025467 000015 177762 000010 031002 000011 006400 *A;7*..R....2....*
720/ 040411 000402 165004 000000 051462 023101 021446 000015 *.A...J..2SA66*..*
740/ 177762 000002 030401 000040 000000 054005 000000 165007 *R....1  ....X....=*
760/ 000000 000061 177762 000002 031403 000040 000000 040005 *..1.R....3  ....R*
```

* Typical user record

VRS STATISTICS

MINIMUM CHANNEL 1
MAXIMUM CHANNEL 20
START DATE 80 2 14 BLK 1 BYTE 0 TIME 993
FINISH DATE 80 2 15 BLK 238 BYTE 262 TIME 646

GMT	COUNT						TIMES (0.1 MIN)					COUNT SPEC. FUCT					
TIME	LOC	SA	FT	GP	TIPP	OVER	LOC	SA	FT	GP	STOP	GO	RPT	DEL	JMP	MFG	LOC ID PROGRESSION
16:35	1	1	0	0	10	2	1	7	0	0	0	0	0	0	0	0	IAD
16:39	1	1	0	0	10	4	1	5	0	0	0	0	0	0	0	0	ORD
16:41	3	3	3	0	46	6	1	14	27	0	0	0	0	0	0	0	DCA AND SAN
16:41	2	0	0	2	29	10	6	0	0	13	0	0	0	0	0	0	PHX DFW
16:44	2	2	2	0	27	5	1	10	11	0	0	0	0	0	0	0	CMH USU
16:44	2	2	2	0	30	6	2	10	21	0	0	0	0	0	0	0	SYR DCA
16:45	3	3	3	3	75	7	2	18	28	20	0	0	0	0	0	0	VRK ERA MIA
16:48	2	2	0	2	31	5	0	14	0	12	0	0	0	0	0	0	DCA HN1
16:49	1	0	1	0	11	3	2	6	5	0	0	0	0	0	0	0	JAU
16:55	3	3	1	0	43	4	4	12	23	0	0	0	0	0	0	0	CLE DCA IAD
16:55	4	2	0	N	76	5	17	12	0	47	0	0	0	0	0	0	HGR PIC HGR PIC HGR RIC HGR RIC
16:55	1	1	1	0	16	3	1	4	8	0	0	0	0	0	0	0	JFK
16:59	4	3	3	3	75	10	19	10	14	22	0	0	0	0	0	0	CMH HAR HRL CMH
17: 0	9	4	5	0	91	9	3	20	59	0	0	0	0	0	0	0	HTS EVV STL PKC ODC ORD HSP PIS HLN
17: 1	2	2	2	2	36	6	2	8	14	6	0	0	0	0	0	0	HAI PDU
17: 2	2	2	0	2	30	6	2	12	0	10	1	0	0	1	0	0	DCA AUK
17: 3	1	1	1	0	24	4	1	10	9	0	0	0	0	0	0	0	SEC
17: 5	1	1	0	0	9	4	1	4	0	0	0	0	0	0	0	0	DCA
17: 5	1	0	0	0	7	2	5	0	0	0	0	0	0	0	0	0	PHL
17: 5	1	1	1	0	23	4	2	8	9	0	0	0	0	0	0	0	TOL
17: 7	1	0	1	0	15	4	2	0	9	0	0	0	0	0	0	0	PHL
17: 9	7	7	7	3	119	12	13	35	45	14	0	0	0	0	0	0	OSH AGC MDT OSU CMH AGC MDT
17: 9	2	0	2	2	43	6	2	0	20	15	0	0	0	0	0	0	CMH DAY
17:11	4	0	4	4	65	3	14	0	30	18	0	0	0	0	0	0	CMH AGC MAP MPN
17:11	1	1	0	0	17	4	0	9	0	0	0	0	0	0	0	0	MIA
17:11	11	11	4	3	152	7	9	44	31	41	4	0	1	0	3	0	CMH OSU DAY FAA MIF CLE CVG ZZV LUK CAK
17:12	1	1	0	0	11	4	1	6	0	0	0	0	0	0	0	0	MCO
17:13	1	1	0	0	17	4	2	11	0	0	0	0	0	0	0	0	CMH
17:15	3	3	0	0	28	7	1	20	0	0	0	0	0	0	0	0	GJT GUC JAC
17:16	1	1	0	0	11	3	2	6	0	0	0	0	0	0	0	0	GUC
17:17	4	1	4	1	70	8	3	7	30	22	0	0	0	0	0	0	IAD BOL MHT BOS
17:18	2	2	2	0	52	6	1	22	23	0	3	2	1	0	0	0	CMH PIT
17:20	1	1	1	0	23	4	2	7	10	0	0	0	0	0	0	0	CMH
17:21	1	1	1	1	28	4	1	5	11	7	0	0	0	0	0	0	IAD
17:22	5	0	5	0	67	3	16	0	46	0	0	0	0	0	0	0	MCO MCO FAA CMH DAY CVG
17:23	1	1	1	0	24	3	5	6	10	0	0	0	0	0	0	0	CMH
17:24	3	1	3	0	46	4	3	6	33	0	0	0	0	0	0	0	IAD MSP CVG
17:25	3	3	1	0	38	4	6	24	4	0	0	0	0	0	0	0	PIT SAV ORL

Only the 1st & last page of the lengthy user report is included in this sample run.

VHS STATISTICS

MINIMUM CHANNEL 1
MAXIMUM CHANNEL 20
START DATE 80 2 14 BLK 1 BYTE 0 TIME 993
FINISH DATE 80 2 15 BLK 238 BYTE 262 TIME 646

GMT	COUNT				TIMES (0.1 MIN)							COUNT SPEC. [illegible]					
TIME	LOC	SA	BT	GF	TOTAL	OVER	LOC	SA	FI	GS	STOR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	LOC ID REQUESTED
5:49	4	3	1	0	50	6	4	27	11	0	2	0	0	0	0	2	[illegible] EYS JFK LAX
5:54	14	2	6	0	147	11	32	15	73	16	6	0	3	0	1	2	[illegible] ESP PTS GFP MAP [illegible] [illegible] ESP HTS CFY
5:59	2	2	0	0	14	6	1	12	0	0	0	0	0	0	0	0	LAX LAX
6: 2	2	2	0	0	21	5	1	11	4	0	1	0	0	0	0	1	[illegible] [illegible]
6: 3	1	0	1	0	13	3	2	0	8	0	0	0	0	0	0	0	PCA
6:16	1	1	1	0	14	3	1	5	5	0	0	0	0	0	0	0	LAX
6:20	2	2	0	2	30	0	1	18	0	15	0	0	0	0	0	0	LAX JFK
6:23	5	5	5	5	137	24	21	31	35	21	3	0	3	0	0	1	[illegible] CAY THG PIT CAY [illegible] [illegible] [illegible]
6:24	1	0	0	0	17	3	14	0	0	6	2	0	0	1	0	1	[illegible]
6:36	5	5	0	0	106	4	81	21	0	0	12	0	0	7	0	4	LAX LAX LAX LAX LAX LAC LAX LAC LAX JFK
6:55	7	7	5	5	150	8	105	13	3	21	16	0	0	10	0	4	[illegible] [illegible] GHI [illegible] JFK [illegible] HPF [illegible] JFL LAX
7: 6	7	6	1	0	50	11	2	30	4	0	0	0	0	0	0	0	PCA MIC CHS ATL JAX TPA TPA
7: 8	6	6	6	6	33	4	4	5	7	4	2	0	0	0	2	0	PCA MIA CHS ATL JAX TPA PCA MIA CHS PCA
7:16	3	2	2	3	69	5	9	9	17	29	3	0	0	0	3	0	[illegible] [illegible] [illegible] PCA LCA PCA LCA LCA PCA
7:21	14	14	0	0	157	20	3	87	42	0	2	0	0	0	0	2	SAL TPL ESP PHX [illegible] [illegible] [illegible] [illegible] [illegible] SAC
7:45	5	5	0	0	152	12	2	126	10	0	2	0	0	0	0	2	[illegible] [illegible] [illegible] [illegible] LAX
8:57	4	4	4	0	58	3	3	24	26	0	0	0	0	0	0	0	STL [illegible] [illegible] ICT
9:16	3	3	0	3	49	14	1	21	0	13	0	0	0	0	0	0	[illegible] [illegible] [illegible]
9:51	2	2	1	0	26	4	1	15	3	0	0	0	0	0	0	0	STL [illegible]
9:55	2	2	1	0	36	4	2	14	16	0	0	0	0	0	0	0	[illegible] [illegible]
10: 3	3	3	3	0	41	13	1	12	15	0	0	0	0	0	6	0	[illegible] MIC [illegible]
10: 5	1	1	0	0	18	4	1	8	0	0	0	0	0	0	0	0	[illegible]
10:16	3	3	0	0	36	7	9	20	0	0	0	0	0	0	0	0	[illegible] [illegible] SAV SAV
10:27	2	2	2	0	49	7	1	10	31	0	0	0	1	0	0	0	[illegible] [illegible]
10:30	2	2	0	0	16	4	1	6	0	0	0	0	0	0	0	0	[illegible] [illegible]
10:34	7	7	0	0	64	4	5	47	18	0	2	0	0	0	0	2	[illegible] LAX [illegible] [illegible] [illegible] [illegible] SAC
10:39	1	1	0	0	16	2	6	8	0	0	0	0	0	0	0	0	[illegible]
10:40	3	3	0	1	27	6	4	16	0	1	0	0	0	0	0	0	[illegible] [illegible] [illegible]
10:43	1	1	1	0	19	3	1	2	12	0	0	0	0	0	0	0	[illegible]

APPENDIX C - PROGRAM LISTING

```
FORTRAN IV      V01C-03A

      C     DATE DEC. 12,1979 SENT TO MITRE STATO.FOR
0001        COMMON /TERM/ USTRM
0002          COMMON /OPTION/ IOPT
0003          COMMON /READ/CUREC,PRREC,REPMI
0004          INTEGER*2 USTRM,TIME,XCHAN1,YCHAN1
0005          INTEGER*2 CUREC(20,32),PRREC(20,32),REPMI(20)
0006          INTEGER*2 EOF,REC(32)
0007          LOGICAL*1 IREC(64)
0008          EQUIVALENCE(REC(1),IREC(1))
0009          DATA IREC /64*0/
0010        PRINT 7777,
0011  7777  FORMAT(1HX,'  VRS STATISTICS    ')
0012          TYPE 657,
0013  657     FORMAT(' TYPE OPTION IN 12 FORMAT  ')
0014          ACCEPT 659,IOPT
0015  633   CONTINUE
0016  659     FORMAT(I2)
0017  654   FORMAT('  TYPE IN MINIMUM CHANNEL NUMBER  ')
0018  655   FORMAT('  TYPE IN MAXIMUM CHANNEL NUMBER  ')
0019        TYPE 654,
0020        ACCEPT 659,XCHAN1
0021        PRINT 666,XCHAN1
0022  666   FORMAT('  MINIMUM CHANNEL    ',I2)
0023        IF(XCHAN1.LE.0)XCHAN=1
0025        TYPE 655,
0026        ACCEPT 659,YCHAN1
0027        PRINT 6667,YCHAN1
0028  6667  FORMAT('  MAXIMUM CHANNEL  ',I2)
0029        IF(YCHAN1.GT.20)YCHAN1=1
0031        IF(XCHAN1.GT.YCHAN1) GO TO 633
0033  79    CONTINUE
0034          CALL READER (IREC,JJREC,EOF)
      C        PRINT 7766,(IREC(IU),IU=1,JJREC)
0035  776      FORMAT(1X,1406,2341)
0036          IF(EOF.GT.0)GO TO 39
0038          IUSER=IREC(1)+1
0039          IF(IUSER.LT.XCHAN1.OR.IUSER.GT.YCHAN1)GOTO 76
      C     PRINT 7768,IUSER
0041  7768  FORMAT(' IUSER  ',I5)
0042          DO 45 J=1,32
0043          PRREC(IUSER,J)=CUREC(IUSER,J)
0044          CUREC(IUSER,J)=REC(J)
0045  45    CONTINUE
0046  52      CONTINUE
0047          CALL MINUTE(CUREC(IUSER,6),CUREC(IUSER,7),TIME,ITYPE)
0048          CALL LOCO (IUSER,JJREC,IREC)
      C         CALL KEYY (IUSER,IREC(6),IREC(7),TIME)
0049          CALL MORE(IUSER,JJREC,IREC)
0050         CALL UMAX(IUSER,IREC(6),IREC(7),TIME)
0051          CALL REPORT (IUSER,JJREC,IREC)
0052         CALL NEXT(ITYPE,IREC(6),IREC(7),IUSER)
0053          CALL STATUS (IUSER,IREC(3),IREC(7))
0054          CALL TIMER(IUSER,IREC(6),IREC(7),ITYME)
0055          GO TO 79
0056  39    CONTINUE
0057          TYPE 789,
0058  789     FORMAT('1')
0059           CALL SUMMAR
0060        CALL SUMLOC
0061            STOP 'INIT'
0062  76      CONTINUE
0063  75      FORMAT('  CHANNEL OUT OF RANGE  ',07)
0064          GO TO79
0065            END
```

```
FORTRAN IV      STORAGE MAP

NAME    OFFSET  ATTRIBUTES

REC     000006  INTEGER*2 ARRAY (32)
IREC    000006  LOGICAL*1 ARRAY (64)
TIME    000572  INTEGER*2 VARIABLE
XCHAN1  000574  INTEGER*2 VARIABLE
YCHAN1  000576  INTEGER*2 VARIABLE
EOF     000600  INTEGER*2 VARIABLE
XCHAN   000602  REAL*4    VARIABLE
READER  000000  REAL*4    PROCEDURE
JJREC   000606  INTEGER*2 VARIABLE
IUSER   000610  INTEGER*2 VARIABLE
J       000612  INTEGER*2 VARIABLE
MINUTE  000000  INTEGER*2 PROCEDURE
ITYME   000614  INTEGER*2 VARIABLE
LOCO    000000  INTEGER*2 PROCEDURE
MORE    000000  INTEGER*2 PROCEDURE
UMAX    000000  REAL*4    PROCEDURE
REPORT  000000  REAL*4    PROCEDURE
KEYT    000000  INTEGER*2 PROCEDURE
STATUS  000000  REAL*4    PROCEDURE
TIMER   000000  REAL*4    PROCEDURE
SUMMAR  000000  REAL*4    PROCEDURE
SUMLOC  000000  REAL*4    PROCEDURE


COMMON BLOCK /TERM/     LENGTH 000002

USTRM   000000  INTEGER*2 VARIABLE

COMMON BLOCK /OPTION/   LENGTH 000002

IOPT    000000  INTEGER*2 VARIABLE

COMMON BLOCK /READ/     LENGTH 005050

CUREC   000000  INTEGER*2 ARRAY (20,32) VECTORED
PRREC   002400  INTEGER*2 ARRAY (20,32) VECTORED
REPH1   005000  INTEGER*2 ARRAY (20)
```

```
FORTRAN IV       V01C-03A

0001           SUBROUTINE KEYY(IUSER,IREC6,IREC7,TIME)
0002             INTEGER*2 COUNT(20),TIME,ATIME,IHC(20)
0003             LOGICAL*1 IREC6,IREC7,KEYM(20),JREC(20)
0004           DATA JREC /20*0/
0005             DATA KEYM /20*0/
0006              DATA ATIME /0/
0007             DATA COUNT /20*0/
0008            DATA IHC /20*0/
0009           IF(IREC7.EQ.5) COUNT(3)=COUNT(3)+1
0011           IF(IREC7.EQ.6)COUNT(6)=COUNT(6)+1
0013             IF( IHC(IUSER).GT.0) GO TO 20
0015           IF(IREC7.EQ.6.AND.IREC6.NE.0)COUNT(7)=COUNT(7)+1
0017           JREC(IUSER)=IREC7
0018            IF(IREC7.NE.5) RETURN
0020            COUNT(1)= COUNT(1) +1
0021            IHC(IUSER)=1
0022            KEYM(IUSER)=0
0023            RETURN
0024  20          IF(IREC6.GT.KEYM(IUSER)) KEYM(IUSER)=IREC6
0026           IF(IREC7.EQ.5)COUNT(4)=COUNT(4)+1
0028           IF(IREC7.NE.6)JREC(IUSER)=IREC7
0030            IF(IREC7.NE.6) RETURN
0032           IF(JREC(IUSER).EQ.5)COUNT(5)=COUNT(5)+1
0034             IF(KEYM(IUSER).LE.5) COUNT(2)=COUNT(2) +1
0036           KEYM(IUSER)=0
0037             IHC(IUSER)=0
0038  78         FORMAT(1X,'   COUNT OF NON REPORT REQUESTS ',6I7,F8.4)
0039             IF((TIME-ATIME).LT.60) RETURN
0041             RATIO =(100.*COUNT(2))/COUNT(1)
0042             PRINT 78,COUNT(1),COUNT(2),COUNT(3),COUNT(4),COUNT(5),COUNT(6)
0043           PRINT 78,COUNT(7)
0044            ATIME=TIME
0045             RETURN
0046            END
```

```
FORTRAN IV       STORAGE MAP

NAME     OFFSET   ATTRIBUTES

COUNT    000024   INTEGER*2 ARRAY (20)
IHC      000074   INTEGER*2 ARRAY (20)
KEYM     000144   LOGICAL*1 ARRAY (20)
JREC     000170   LOGICAL*1 ARRAY (20)
IUSER    000014   INTEGER*2 PARAMETER VARIABLE
IREC6    000016   LOGICAL*1 PARAMETER VARIABLE
IREC7    000020   LOGICAL*1 PARAMETER VARIABLE
TIME     000022   INTEGER*2 PARAMETER VARIABLE
ATIME    000214   INTEGER*2 VARIABLE
RATIO    000272   REAL*4    VARIABLE
```

```
FORTRAN IV      V01C-03A

0001          SUBROUTINE SUMLOC
0002          COMMON /NALOC/LOC4,LOC
0003            COMMON /OPTION/ IOPT
0004            INTEGER*2 LOC4(400)
0005          LOGICAL*1 LOC(3,400),ZERO
0006            JOPT =IOPT.AND.4
0007            IF(JOPT.LE.0)RETURN
0009          PRINT 100,
0010          PRINT 101,
0011  100     FORMAT('1   IDENTITY CODES AND REQUEST COUNTS  ')
0012  101     FORMAT('     LOC COUNT    LOC COUNT    LOC COUNT    LOC COUNT ',
             1'   LOC COUNT    LOC COUNT ')
0013          ZERO=0
0014          IZ=0
0015  78      CONTINUE
0016          IX=IZ+1
0017          IF(IX.GE.400.OR.LOC4(IX).LT.ZERO)RETURN
0019          IP=IX+5
0020          DO 80 IR=IX,IP
0021          IF(LOC4(IR).LT.0)GO TO85
0023          IZ=IZ+1
0024  80      CONTINUE
0025  85      CONTINUE
0026  76      FORMAT(6 (5X,3A1,I5))
0027          PRINT 76,((LOC(IU,II),IU=1,3),LOC4(II),II=IX,IZ)
0028          GO TO 78
0029          END
```

```
FORTRAN IV      STORAGE MAP

NAME    OFFSET  ATTRIBUTES

ZERO    000232  LOGICAL*1 VARIABLE
JOPT    000234  INTEGER*2 VARIABLE
IZ      000236  INTEGER*2 VARIABLE
IX      000240  INTEGER*2 VARIABLE
IP      000242  INTEGER*2 VARIABLE
IR      000244  INTEGER*2 VARIABLE
IU      000246  INTEGER*2 VARIABLE
II      000250  INTEGER*2 VARIABLE


COMMON BLOCK /NALOC/    LENGTH 003720

LOC4    000000  INTEGER*2 ARRAY (400)
LOC     001440  LOGICAL*1 ARRAY (3,400)

COMMON BLOCK /OPTION/   LENGTH 000002

IOPT    000000  INTEGER*2 VARIABLE
```

```
FORTRAN IV       V01C-03A

0001           SUBROUTINE MINUTE(CUR6,CUR7,TIME,ITYME)
0002              INTEGER*2 CUR6,CUR7,OCT(17),TIME
0003               DATA OCT(17) /"177777 /
0004               DATA OCT(16) /"100000 /
0005             DATA OCT(15) /"40000/
0006           DATA OCT(14) /"20000/
0007             DATA OCT(13) /"10000/
0008           DATA OCT(12) /"4000/
0009           DATA OCT(11) /"2000/
0010           DATA OCT(10) /"1000/
0011           DATA OCT(9) /"400/
0012           DATA OCT(8) /"200/
0013           DATA OCT(7) /"100/
0014           DATA OCT(6) /"40/
0015            DATA OCT(5) /"20/
0016            DATA OCT(4) /"10/
0017             DATA OCT(3) /"4/
0018            DATA OCT(2) /"2/
0019            DATA OCT(1) /"1/
0020            TIME=0
0021             IA=CUR7.AND.OCT(1)
0022            IF(IA.LE.0) GO TO 27
0024             TIME=TIME.OR.OCT(15)
0025  27        CONTINUE
0026             DO 25 I=3,16
0027            IA=CUR6.AND.OCT(I)
0028            IF(IA.EQ.0) GO TO 25
0030            TIME=TIME.OR.OCT(I-2)
0031  25        CONTINUE
0032            ITYME=(40./60.)*TIME
0033            TIME =(4./60.)*TIME
0034             RETURN
0035             END



FORTRAN IV       STORAGE MAP

NAME     OFFSET   ATTRIBUTES

OCT      000024   INTEGER*2 ARRAY (17)
CUR6     000014   INTEGER*2 PARAMETER VARIABLE
CUR7     000016   INTEGER*2 PARAMETER VARIABLE
TIME     000020   INTEGER*2 PARAMETER VARIABLE
ITYME    000022   INTEGER*2 PARAMETER VARIABLE
IA       000066   INTEGER*2 VARIABLE
I        000070   INTEGER*2 VARIABLE
```

```
FORTRAN IV      V01C-03A

0001          SUBROUTINE TIMER (IUSER,IREC6,IREC7,TIME)
0002            COMMON /SUM/FTIME,ICO
0003            COMMON /OPTION/IOPT
0004            COMMON /TYPE1/ ITIME,JTIME,GTIME,JCO,ETIME
0005            INTEGER*2 ST(20),GTIME
0006            INTEGER*2 TIME,FTIME(48),ICO(48),ETIME,IND(20)
0007            LOGICAL*1 IREC6,IREC7,FLG(20)
0008             DATA IND /20*0/
0009          DATA IHEX /0/
0010           DATA LTIME /600/
0011            DATA FTIME /48*0/
0012            DATA ICO /48*0/
0013            DATA  ST /20*-1/
0014           DATA FLG /20*0/
0015            IH=(TIME/600) +1+IHEX
0016            ITIME=TIME/600
0017            JTIME=(TIME -600*ITIME)/10
0018             KTIME=TIME-LTIME
0019          IF(TIME.LT.600.AND.KTIME.LT.0)IHEX=24
0021            IF(TIME.LT.600.AND.KTIME.LT.0)KTIME=KTIME+14400
0023           IF(KTIME.LT.600.AND.KTIME.GE.0) GO TO 900
      C         BREAK IN CONTINUITY
0025            DO 901 IU=1,20
0026            ST(IU)=-1
0027            IND(IU)=0
0028  901       CONTINUE
0029          IF(KTIME.LT.0)IHEX=24
0031  900       CONTINUE
0032            LTIME=TIME
      C          LINE BECOMES ACTIVE
0033            IF(IREC7.EQ.5) GO TO 23
0035            IF(IND(IUSER).GT.0) GO TO 79
0037           FLG(IUSER)=IREC7
0038            RETURN
0039  79        CONTINUE
      C          ACTIVE LINE
0040            IF(FLG(IUSER).EQ.5.AND.IREC7.EQ.6) GO TO 900
0042           IF(FLG(IUSER).NE.6.AND.IREC7.EQ.6)GO TO 33
0044            FLG(IUSER)=IREC7
0045            RETURN
      C         SUBROUTINE START
0046  23        ST(IUSER)=TIME
0047            FLG(IUSER)=IREC7
0048            IND(IUSER)=1
0049            RETURN
      C          SUBROUTINE FINISH
0050  33          GTIME=TIME-ST(IUSER)
0051            IF(GTIME.LT.0.AND.TIME.LT.600) GTIME =GTIME+14400
0053            FTIME(IH)=GTIME+FTIME(IH)
0054            ICO(IH)=ICO(IH)+1
0055            ETIME=FTIME(IH)/ICO(IH)
0056            FLG(IUSER)=IREC7
0057           JCO=ICO(IH)
0058            JOPT=IOPT.AND.1
0059            IF(JOPT.LE.0) GO TO 800
0061            CALL TYPER (IUSER)
0062  800       CONTINUE
0063  76       FORMAT(1X,I2,':',I2,4I7)
0064            ST(IUSER)=-1
0065            IND(IUSER)=0
0066          RETURN
0067          END
```

```
FORTRAN IV       STORAGE MAP

NAME     OFFSET   ATTRIBUTES

ST       000024   INTEGER*2 ARRAY (20)
IND      000074   INTEGER*2 ARRAY (20)
FLG      000144   LOGICAL*1 ARRAY (20)
IUSER    000014   INTEGER*2 PARAMETER VARIABLE
IREC6    000016   LOGICAL*1 PARAMETER VARIABLE
IREC7    000020   LOGICAL*1 PARAMETER VARIABLE
TIME     000022   INTEGER*2 PARAMETER VARIABLE
IHEX     000170   INTEGER*2 VARIABLE
LTIME    000172   INTEGER*2 VARIABLE
IH       000210   INTEGER*2 VARIABLE
KTIME    000212   INTEGER*2 VARIABLE
IU       000214   INTEGER*2 VARIABLE
JOPT     000216   INTEGER*2 VARIABLE
TYPER    000000   REAL*4     PROCEDURE


COMMON BLOCK /SUM/       LENGTH 000300

FTIME    000000   INTEGER*2 ARRAY (48)
ICO      000140   INTEGER*2 ARRAY (48)

COMMON BLOCK /OPTION/    LENGTH 000002

IOPT     000000   INTEGER*2 VARIABLE

COMMON BLOCK /TYPE1/     LENGTH 000012

ITIME    000000   INTEGER*2 VARIABLE
JTIME    000002   INTEGER*2 VARIABLE
GTIME    000004   INTEGER*2 VARIABLE
JCO      000006   INTEGER*2 VARIABLE
ETIME    000010   INTEGER*2 VARIABLE
```

```
FORTRAN IV       V01C-03A

0001            SUBROUTINE LOCO(IUSER,JJREC,IREC)
0002            COMMON /OPTION/ IOPT
0003           COMMON /ENT5/ENT1,ENT2,ENT3
0004            COMMON /TYPE2/ COUNT
0005            INTEGER*2 COUNT(20),ENT4(20)
0006            LOGICAL*1 IREC(64),PP,MM,AA,ZZ,SLASH
0007            LOGICAL*1 ENT1(20,10),ENT2(20,10),ENT3(20,10),BL
0008            LOGICAL*1 LENT1,LENT2,LENT3
0009           DATA ENT4 /20*0/
0010            DATA PP /'P'/
0011           DATA BL /' '/
0012            DATA MM /'M'/
0013            DATA AA /'A'/
0014            DATA ZZ /'Z'/
0015            DATA SLASH /'057/
0016           IF(IREC(7).NE.5) GO TO 199
0018           DO 99 IVV=1,10
0019           ENT1(IUSER,IVV)=BL
0020           ENT2(IUSER,IVV)=BL
0021           ENT3(IUSER,IVV)=BL
0022   99      CONTINUE
0023           ENT4(IUSER)=0
0024   199     CONTINUE
0025            IF(IREC(6).NE.1.AND.IREC(6).NE.5) RETURN
0027            IF (IREC(16).NE.PP.AND.IREC(17).NE.PP)RETURN
0029            IF(IREC(17).NE.MM.AND.IREC(18).NE.MM)RETURN
0031            COUNT(IUSER)=0
0032   78       FORMAT(' RECORD LOCO  ',27A1)
       C        TYPE 78,(IREC(IU),IU=15,JJREC)
0033            IKL=18
0034            IF(IREC(18).EQ.MM) IKL=19
0036           IV=1+ENT4(IUSER)
0037   89       CONTINUE
0038           IF(IV.GT.10) IV=10
       C        TYPE 79,COUNT(IUSER),IREC(IKL+4)
0040   79       FORMAT( 'COUNT=  ',I5,A7)
0041            DO 97 IU=1,3
0042             KL=IKL+IU
0043            IF (IREC(KL).GT.ZZ.OR.IREC(KL).LT.AA)RETURN
0045   97       CONTINUE
0046            JOPT=IOPT.AND.4
0047            IF(JOPT.LE.0) GO TO 87
0049            LENT1=IREC(IKL+1)
0050            LENT2=IREC(IKL+2)
0051            LENT3=IREC(IKL+3)
0052            CALL LOCAT(LENT1,LENT2,LENT3)
0053   87       CONTINUE
0054            JOPT=IOPT.AND.2
0055            IF (JOPT.LE.0)GO TO 86
0057            ENT1(IUSER,IV)=IREC(IKL+1)
0058            ENT2(IUSER,IV)=IREC(IKL+2)
0059            ENT3(IUSER,IV)=IREC(IKL+3)
0060           ENT4(IUSER)=IV
0061   86       CONTINUE
0062            COUNT(IUSER)=COUNT(IUSER)+1
0063            IF(IREC(IKL+4).NE.SLASH)RETURN
0065           IV=IV+1
0066            IKL=IKL+4
0067            GO TO 89
0068            RETURN
0069            END
```

```
FORTRAN IV       STORAGE MAP

NAME     OFFSET   ATTRIBUTES

ENT4     000022   INTEGER*2 ARRAY (20)
IREC     000020   LOGICAL*1 PARAMETER ARRAY (64)
IUSER    000014   INTEGER*2 PARAMETER VARIABLE
JJREC    000016   INTEGER*2 PARAMETER VARIABLE
PP       000072   LOGICAL*1 VARIABLE
MM       000074   LOGICAL*1 VARIABLE
AA       000075   LOGICAL*1 VARIABLE
ZZ       000076   LOGICAL*1 VARIABLE
SLASH    000077   LOGICAL*1 VARIABLE
BL       000073   LOGICAL*1 VARIABLE
LENT1    000170   LOGICAL*1 VARIABLE
LENT2    000171   LOGICAL*1 VARIABLE
LENT3    000172   LOGICAL*1 VARIABLE
IVV      000174   INTEGER*2 VARIABLE
IKL      000176   INTEGER*2 VARIABLE
IV       000200   INTEGER*2 VARIABLE
IU       000202   INTEGER*2 VARIABLE
KL       000204   INTEGER*2 VARIABLE
JOPT     000206   INTEGER*2 VARIABLE
LOCAL    000000   INTEGER*2 PROCEDURE


COMMON BLOCK /OPTION/   LENGTH 000002

IOPT     000000   INTEGER*2 VARIABLE

COMMON BLOCK /ENTS/     LENGTH 001130

ENT1     000000   LOGICAL*1 ARRAY (20,10) VECTORED
ENT2     000310   LOGICAL*1 ARRAY (20,10) VECTORED
ENT3     000620   LOGICAL*1 ARRAY (20,10) VECTORED

COMMON BLOCK /TYPE2/    LENGTH 000050

COUNT    000000   INTEGER*2 ARRAY (20)
```

```
FORTRAN IV       V01C-03A

0001          SUBROUTINE TYPEP (IUSER)
0002         COMMON /ENTS/ ENT1,ENT2,ENT3
0003           COMMON /TYPE7/TIMEX,FRACT
0004           COMMON /SPEC1/ ISPRC(20,12)
0005           COMMON /TYPE3/ FTI,SAI,FDI
0006           COMMON /TYPE2/COUNT
0007           COMMON /TYPE1/ITIME,JTIME,GTIME,JCO,ETIME
0008           INTEGER*2 FRACT(19),TIMEX(19,20), FTI(20),SAI(20),FDI(20)
0009            INTEGER*2 GTIME,JCO,ETIME,COUNT(20),LINE
0010         LOGICAL*1 ENT1(20,10),ENT2(20,10),ENT3(20,10)
0011           DATA LINE /45/
0012           IF( LINE.LT.40) GO TO 900
0014          PRINT 789,
0015          PRINT 788,
0016           LINE=2
0017  900      CONTINUE
0018           PRINT 76,ITIME,JTIME,COUNT(IUSER)
             1  ,SAI(IUSER),FTI(IUSER),FDI(IUSER),GTIME,TIMEX
             2  (1,IUSER),TIMEX(2,IUSER),
             2 TIMEX(14,IUSER),TIMEX(16,IUSER),TIMEX(19,IUSER),
             7ISPRC(IUSER,3),ISPRC(IUSER,4),ISPRC(IUSER,6),ISPRC(IUSER,9)
             8,ISPRC(IUSER,7),ISPRC(IUSER,5)
             5     ,((ENT1(IUSER,IV),ENT2(IUSER,IV),ENT3(IUSER,IV)),IV=1,10)
0019            LINE = LINE +1
0020  76       FORMAT(1X,I2,':',I2.2X,4I4,5X,6I5,4X,6I5,10(3A1,1X))
0021  789      FORMAT('1GMT',3X,5X,'COUNT',6X,20X,'TIMES (0.1 MIN)',
             110X,'   COUNT SPEC. FACT')
0022  788      FORMAT(1X' TIME',2X,'LOC  SA   FI
             1  GF ',5X,' TIME OVER  LOC   SA   FT   GF ',4X,
             ,'STOP   GO RP1  DEL  JMP BEG  LOC ID REQUESTED ')
0023           RETURN
0024           END
```

```
FORTRAN IV       STORAGE MAP

NAME     OFFSET   ATTRIBUTES

IUSER    000014   INTEGER*2 PARAMETER VARIABLE
LINE     000016   INTEGER*2 VARIABLE
IV       000442   INTEGER*2 VARIABLE


COMMON BLOCK /EN15/      LENGTH 001130

ENT1     000000   LOGICAL*1 ARRAY (20,10) VECTORED
ENT2     000310   LOGICAL*1 ARRAY (20,10) VECTORED
ENT3     000620   LOGICAL*1 ARRAY (20,10) VECTORED

COMMON BLOCK /TYPE7/     LENGTH 001436

TIMEX    000000   INTEGER*2 ARRAY (19,20) VECTORED
FRACT    001370   INTEGER*2 ARRAY (19)

COMMON BLOCK /SPEC1/     LENGTH 000740

ISPEC    000000   INTEGER*2 ARRAY (20,12) VECTORED

COMMON BLOCK /TYPE3/     LENGTH 000170

FTI      000000   INTEGER*2 ARRAY (20)
SAI      000050   INTEGER*2 ARRAY (20)
FDI      000120   INTEGER*2 ARRAY (20)

COMMON BLOCK /TYPE2/     LENGTH 000050

COUNT    000000   INTEGER*2 ARRAY (20)

COMMON BLOCK /TYPE1/     LENGTH 000012

ITIME    000000   INTEGER*2 VARIABLE
JTIME    000002   INTEGER*2 VARIABLE
GTIME    000004   INTEGER*2 VARIABLE
JCO      000006   INTEGER*2 VARIABLE
ETIME    000010   INTEGER*2 VARIABLE
```

```
FORTRAN IV      V01C-03A

0001            SUBROUTINE REPORT(IUSER,JJREC,IREC)
0002           COMMON /TYPE3/FTI,SAI,FDI
0003            COMMON /REPT1/COUNTL
0004           INTEGER*2 COUNTL(20)
0005            INTEGER*2 FTI(20),SAI(20),FDI(20)
0006            LOGICAL*1 IREC(64),FF,SS,TT,AA,DD,FI,SA,FD,RECO(20)
0007            DATA FTI /20*0/
0008            DATA SAI /20*0/
0009            DATA FDI /20*0/
0010            DATA RECO /20*0/
0011            DATA FI /15/
0012            DATA SA /13/
0013            DATA FD /18/
0014            DATA FF /'F'/
0015            DATA SS /'S'/
0016            DATA TT /'T'/
0017            DATA AA /'A'/
0018            DATA DD /'D'/
0019            IF(IREC(7).EQ.5) GO TO 100
0021            IF(REC6(IUSER).EQ.IREC(6)) RETURN
0023            REC6(IUSER)=IREC(6)
0024            IF(IREC(16).NE.FF.AND.IREC(17).NE.FF)GO TO 300
0026            IF(IREC(17).NE.TT.AND.IREC(18).NE.TT) GO TO 300
0028            IF(IREC(6).EQ.FI)FTI(IUSER)=FTI(IUSER)+COUNTL(IUSER)
0030  300       CONTINUE
0031            IF(IREC(16).NE.SS.AND.IREC(17).NE.SS) GO TO 200
0033            IF(IREC(17).NE.AA.AND.IREC(18).NE.AA) GO TO 200
0035            IF(IREC(6).EQ.SA)SAI(IUSER)=SAI(IUSER)+COUNTL(IUSER)
0037  200       CONTINUE
0038            IF(IREC(16).NE.FF.AND.IREC(17).NE.FF)RETURN
0040            IF(IREC(17).NE.DD.AND.IREC(18).NE.DD)RETURN
0042            IF(IREC(6).EQ.FD)FDI(IUSER)=FDI(IUSER)+COUNTL(IUSER)
0044            RETURN
0045  100       CONTINUE
0046            FTI(IUSER)=0
0047            SAI(IUSER)=0
0048            FDI(IUSER)=0
0049            RETURN
0050            END
```

```
FORTRAN IV      STORAGE MAP

NAME    OFFSET  ATTRIBUTES

IREC    000020  LOGICAL*1 PARAMETER ARRAY (64)
REC6    000022  LOGICAL*1 ARRAY (20)
IUSER   000014  INTEGER*2 PARAMETER VARIABLE
JJREC   000016  INTEGER*2 PARAMETER VARIABLE
FF      000051  LOGICAL*1 VARIABLE
SS      000052  LOGICAL*1 VARIABLE
TT      000053  LOGICAL*1 VARIABLE
AA      000054  LOGICAL*1 VARIABLE
DD      000055  LOGICAL*1 VARIABLE
FT      000046  LOGICAL*1 VARIABLE
SA      000047  LOGICAL*1 VARIABLE
FD      000050  LOGICAL*1 VARIABLE


COMMON BLOCK /TYPE3/    LENGTH 000170

FTI     000000  INTEGER*2 ARRAY (20)
SAI     000050  INTEGER*2 ARRAY (20)
FDI     000120  INTEGER*2 ARRAY (20)

COMMON BLOCK /REPT1/    LENGTH 000050

COUNTL  000000  INTEGER*2 ARRAY (20)
```

```
FORTRAN IV       V01C-03A

0001            SUBROUTINE MORE(IUSER,JJREC,IREC)
0002             COMMON /TYPE2/COUNT
0003           COMMON /REPT1/COUNTL
0004             INTEGER*2 IHC(20),COUNT(20),COUNTL(20),COUNTM(20)
0005             LOGICAL*1 IREC(64)
0006            DATA COUNTM /20*0/
0007             DATA IHC /20*0/
0008             DATA COUNTL /20*0/
0009            IF(IREC(7).EQ.5) GO TO 100
0011             IF(IREC(6).NE.1.AND.IREC(6).NE.5)GO TO 700
0013             IF(IHC(IUSER).LE.0)GO TO 200
0015             COUNTM(IUSER)= COUNTM(IUSER)+COUNTL(IUSER)
0016             COUNTL(IUSER)=0
0017   200       CONTINUE
0018             IHC(IUSER)=0
0019             IF(COUNT(IUSER).GT.COUNTL(IUSER)) COUNTL(IUSER)=COUNT(IUSER)
0021             COUNT(IUSER)= COUNTM(IUSER) + COUNTL(IUSER)
0022            RETURN
0023   700       CONTINUE
0024             IHC(IUSER)=1
0025             COUNT(IUSER)=COUNTM(IUSER)+COUNTL(IUSER)
0026             RETURN
0027   100       COUNTM(IUSER)=0
0028             COUNTL(IUSER)=0
0029             COUNT(IUSER)=0
0030             IHC(IUSER)=0
0031             RETURN
0032            END
```

```
FORTRAN IV       STORAGE MAP

NAME     OFFSET   ATTRIBUTES

IHC      000022   INTEGER*2 ARRAY (20)
COUNTM   000072   INTEGER*2 ARRAY (20)
IREC     000020   LOGICAL*1 PARAMETER ARRAY (64)
IUSER    000014   INTEGER*2 PARAMETER VARIABLE
JJREC    000016   INTEGER*2 PARAMETER VARIABLE


COMMON BLOCK /TYPE2/     LENGTH 000050

COUNT    000000   INTEGER*2 ARRAY (20)

COMMON BLOCK /REPT1/     LENGTH 000050

COUNTL   000000   INTEGER*2 ARRAY (20)
```

```
FORTRAN IV       V01C-03A

0001            SUBROUTINE KEYT(TIME,IREC6,IREC7,IUSER)
0002            COMMON /TYPE7/ITMEM,FRACT
0003            INTEGER*2 TIME,KEYI(19),KEYU(20),ITMEM(19,20),FRACT(19),ST(20)
              1  ,SE(20),ITIME(20),IHC(20)
0004             LOGICAL*1 IREC6,IREC7
0005            DATA ST /20*0/
0006           DATA IHC /20*0/
0007            DATA IXYZ /977/
0008            DATA SE /20*0/
0009           DATAKEYU /20*18/
0010            DATA FRACT /19*0/
0011            DATA ITIME /20*0/
0012           IF(IXYZ.NE.977) GO TO 977
0014            DO 200 IU=1,19
0015            DO 201 JU=1,20
0016            ITMEM(IU,JU)=0
0017  201       CONTINUE
0018            KEYI(IU)=IU
0019  200       CONTINUE
0020            KEYI(6)=2
0021            KEYI(18)=19
0022            KEYI(17)= 19
0023  977       CONTINUE
0024            IXYZ=0
0025            IF(IREC7.NE.5) GO TO 300
0027          IHC(IUSER)=2
0028            SE(IUSER)=TIME
0029            ST(IUSER)=TIME
0030            ITIME(IUSER)=0
0031            DO 301 IU=1,19
0032            FRACT(IU)=FRACT(IU)+TMEM(IU,IUSER)
0033            TMEM(IU,IUSER)=0
0034  301       CONTINUE
0035  300     IF(IHC(IUSER).LE.0) RETURN
0037          IF(IREC7.EQ.6) IHC(IUSER)=0
0039            SE(IUSER)=TIME
0040             KEY=IREC6+1
0041             KEYJ=KEYI(KEY)
0042            IF(KEYJ.EQ.3.OR.KEYJ.EQ.5)KEYJ=KEYU(IUSER)
0044            ITIME(IUSER)=SE(IUSER)-ST(IUSER)
0045            IF(ITIME(IUSER).LT.0)ITIME(IUSER)=0
0047            IF(KEYJ.NE.KEYU(IUSER)) GO TO 100
0049            IF(IREC7.EQ.6) GO TO 100
0051            RETURN
0052  100       KEYL =KEYU(IUSER)
0053            TIMEM(KEYL,IUSER)=TIMEM(KEYL,IUSER)+ITIME(IUSER)
0054            ITIME(IUSER)=0
0055            ST(IUSER)=SE(IUSER)
0056           KEYU(IUSER)=KEYJ
0057            RETURN
0058           END
```

```
FORTRAN IV       STORAGE MAP

NAME     OFFSET   ATTRIBUTES

KEYI     000024   INTEGER*2 ARRAY (19)
KEYU     000072   INTEGER*2 ARRAY (20)
ST       000142   INTEGER*2 ARRAY (20)
SE       000212   INTEGER*2 ARRAY (20)
ITIME    000262   INTEGER*2 ARRAY (20)
IHC      000332   INTEGER*2 ARRAY (20)
TIME     000014   INTEGER*2 PARAMETER VARIABLE
IREC6    000016   LOGICAL*1 PARAMETER VARIABLE
IREC7    000020   LOGICAL*1 PARAMETER VARIABLE
IUSER    000022   INTEGER*2 PARAMETER VARIABLE
IXYZ     000402   INTEGER*2 VARIABLE
IU       000454   INTEGER*2 VARIABLE
JU       000456   INTEGER*2 VARIABLE
KEY      000460   INTEGER*2 VARIABLE
KEYJ     000462   INTEGER*2 VARIABLE
KEYL     000464   INTEGER*2 VARIABLE


COMMON BLOCK /TYPE7/     LENGTH 001436

TIMEA    000000   INTEGER*2 ARRAY (19,20) VECTORED
FRACT    001370   INTEGER*2 ARRAY (19)
```

```
FORTRAN IV      V01C-03A

0001            SUBROUTINE STATUS(IUSER,IREC3,IREC7)
0002           COMMON /SPEC1/ISPRC(20,12)
0003            LOGICAL*1 IREC3,MIN,GO,IREC7
0004            DATA GO /99/
0005            DATA MIN /'40/
0006            IF(GO.NE.99) GO TO 120
0008           DO 87 IU=1,20
0009            DO 88 JU=1,12
0010           ISPRC(IU,JU)=0
0011    88      CONTINUE
0012    87      CONTINUE
0013           GO=789
0014    120     CONTINUE
0015            IVAL=IREC3-MIN + 1
0016            IF(IVAL.LT.1.OR.IVAL.GT.12) GO TO 900
0018            ISPRC(IUSER,IVAL)=ISPRC(IUSER,IVAL)+1
0019    900     CONTINUE
0020            IF(IREC7.EQ.5) GO TO 100
0022            RETURN
0023    100     CONTINUE
0024            DO 23 IU=1,12
0025            ISPRC(IUSER,IU)=0
0026    23      CONTINUE
0027            RETURN
0028            END
```

```
FORTRAN IV      STORAGE MAP

NAME    OFFSET  ATTRIBUTES

IUSER   000014  INTEGER*2 PARAMETER VARIABLE
IREC3   000016  LOGICAL*1 PARAMETER VARIABLE
IREC7   000020  LOGICAL*1 PARAMETER VARIABLE
MIN     000023  LOGICAL*1 VARIABLE
GO      000022  LOGICAL*1 VARIABLE
IU      000054  INTEGER*2 VARIABLE
JU      000056  INTEGER*2 VARIABLE
IVAL    000060  INTEGER*2 VARIABLE

COMMON BLOCK /SPEC1/    LENGTH 000740

ISPRC   000000  INTEGER*2 ARRAY (20,12) VECTORED
```

```
FORTRAN IV       V01C-03A

0001            SUBROUTINE LOCAT (ENT1,ENT2,ENT3)
0002           COMMON /NALOC/ LOC4,LOC
0003            INTEGER*2 LOC4(400)
0004            LOGICAL*1 LOC(3,400),ENT1,ENT2,ENT3
0005            DATA NLOC /0/
0006           IF(NLOC.LE.0) GO TO 10
0008            DO 1 I=1,NLOC
0009            NL=I
0010            IF(LOC(1,I).EQ.ENT1) GO TO 100
0012  1         CONTINUE
0013  10        NLOC=NLOC+1
0014           LOC4(NLOC)=1
0015           LOC4(NLOC+1)=-1
0016            LOC(1,NLOC)=ENT1
0017           LOC(2,NLOC)=ENT2
0018              LOC(3,NLOC)=ENT3
      C         PRINT 79,ENT1,ENT2,ENT3
0019  79        FORMAT(' LOCATION ',3A1)
0020            RETURN
0021  100       IF(LOC(2,NL).NE.ENT2.OR.LOC(3,NL).NE.ENT3) GO TO 1
0023           LOC4(NL)=LOC4(NL) + 1
0024            RETURN
***** E
```

```
FORTRAN IV       STORAGE MAP

NAME     OFFSET  ATTRIBUTES

ENT1     000014  LOGICAL*1 PARAMETER VARIABLE
ENT2     000016  LOGICAL*1 PARAMETER VARIABLE
ENT3     000020  LOGICAL*1 PARAMETER VARIABLE
NLOC     000022  INTEGER*2 VARIABLE
I        000046  INTEGER*2 VARIABLE
NL       000050  INTEGER*2 VARIABLE

COMMON BLOCK /NALOC/    LENGTH 003720

LOC4     000000  INTEGER*2 ARRAY (400)
LOC      001440  LOGICAL*1 ARRAY (3,400)
```

```
FORTRAN IV      V01C-03A

      C     DATE DEC. 12,1979 SENT TO MITRE STATC.FOR
0001          SUBROUTINE ERROR (LREC,KLI,IERR)
0002          LOGICAL*1 LREC(64)
0003          DATA MINUE /-14/
0004          IF(LREC(1).EQ.MINUE) GO TO 80
0006          KLI=KLI-2
0007          IERR= IERR+1
0008          TYPE 78,LREC(1),LREC(2),LREC(3),LREC(4)
0009  78        FORMAT('  ERROR  ',4I5)
0010          RETURN
0011  80    IF(IERR.GT.0)TYPE 87,IERR
0013  87    FORMAT('  THERE WERE  ',I5,'  ERRORS AT THIS POINT  ')
0014        IERR=0
0015          RETURN
0016          END
```

```
FORTRAN IV      STORAGE MAP

NAME    OFFSET  ATTRIBUTES

LREC    000014  LOGICAL*1 PARAMETER ARRAY (64)
KLI     000016  INTEGER*2 PARAMETER VARIABLE
IERR    000020  INTEGER*2 PARAMETER VARIABLE
MINUE   000022  INTEGER*2 VARIABLE
```

```
FORTRAN IV      V01C-03A

0001          SUBROUTINE SUMMAR
0002         COMMON /OPTION/IOPT
0003           COMMON /TYPE7/ TIMEX,FRACT
0004           COMMON /SUB7/ KEYM
0005           COMMON /SUM/FTIME,ICO
0006           INTEGER*2 FTIME(48),ICO(48),KEYM(48)
0007           INTEGER*2SICO,TIMEX(19,20),FRACT(19)
0008           PRINT 78,
0009           PRINT 77,
0010  77       FORMAT('    HOUR  ',' USERS  ',' TIME  ',' USERS ')
0011  888      FORMAT(' ')
0012  78       FORMAT('1',',          ',',         ',' AVG.  ',' SIMUL. ')
0013            SICO=0
0014           ATIME=0.
0015           MKEYM=0
0016            DO 89 IU=1,48
0017          IF(ICO(IU).LE.0) GOTO 89
0019           ATIME=ATIME + FTIME(IU)
0020            IF(MKEYM.LT.KEYM(IU))MKEYM=KEYM(IU)
0022           SICO=SICO+ICO(IU)
0023         ETIME=FTIME(IU)/ICO(IU)
0024          ETIME=ETIME/10.
0025           JU=IU-1
0026         IF(JU.GT.23)JU=JU-24
0028           PRINT 87,JU,ICO(IU),ETIME,KEYM(IU)
0029  89       CONTINUE
0030         ATIME=ATIME
0031  87       FORMAT(2X,2I8,F8.3,3I8)
0032         IF(SICO.LE.0) GO TO 913
0034           ATIME=ATIME/SICO
0035           ATIME =ATIME/10.
0036           PRINT 868,
0037           PRINT 888,
0038           PRINT 888,
0039           PRINT 899, SICO,ATIME,MKEYM
0040  899     FORMAT(' TOTAL USERS  ',I5,'    AVG. TIME  ',F6.3,
     1'    MAX. SIMUL. USERS  ',I5,' FOR DAY')
0041           MFRACT=0
0042           PRINT888,
0043           PRINT 888,
0044         PRINT 888,
0045           DO 765 IJ=1,19
0046           FRACT(IJ)=FRACT(IJ)*100./ATIME
0047           MFRACT=MFRACT +FRACT(IJ)
0048  765      CONTINUE
0049           FRACT(1)=FRACT(1)-MFRACT +100
0050            PRINT 900,
0051  900      FORMAT(' FRACTIONAL %')
0052           PRINT 901,FRACT(1)
0053  901     FORMAT('  OVHD  ',I5)
0054           PRINT 902,FRACT(2)
0055  902     FORMAT('  LOCID',I5)
0056           PRINT 903,FRACT(14)
0057  903     FORMAT('  SA    ',I5)
0058           PRINT 904,FRACT(16)
0059  904     FORMAT('  PT  ',I5)
0060           PRINT 905,FRACT(19)
0061  905      FORMAT('  GF  ',I5)
0062           RETURN
0063  913    CONTINUE
0064           IOPT=0
0065           PRINT 914,
0066  914    FORMAT(' THERE IS NO DATA ON THE CHANNELS CHOSEN')
0067          RETURN
0068           END
```

```
FORTRAN IV       STORAGE MAP

NAME     OFFSET   ATTRIBUTES

SICO     000540   INTEGER*2 VARIABLE
ATIME    000542   REAL*4    VARIABLE
MKEYM    000546   INTEGER*2 VARIABLE
IU       000550   INTEGER*2 VARIABLE
ETIME    000552   REAL*4    VARIABLE
JU       000556   INTEGER*2 VARIABLE
BTIME    000560   REAL*4    VARIABLE
MFRACT   000564   INTEGER*2 VARIABLE
IJ       000566   INTEGER*2 VARIABLE


COMMON BLOCK /OPTION/   LENGTH 000002

IOPT     000000   INTEGER*2 VARIABLE

COMMON BLOCK /TYPE7/    LENGTH 001436

TIMEX    000000   INTEGER*2 ARRAY (19,20) VECTORED
FRACT    001370   INTEGER*2 ARRAY (19)

COMMON BLOCK /SUB7/     LENGTH 000140

KEYM     000000   INTEGER*2 ARRAY (48)

COMMON BLOCK /SUM/      LENGTH 000300

ETIME    000000   INTEGER*2 ARRAY (48)
ICO      000140   INTEGER*2 ARRAY (48)
```

```
FORTRAN IV       V01C-03A

0001          SUBROUTINE UMAX(IUSER,IREC6,IREC7,IIME)
0002           COMMON /SUB7/ KEYM
0003            INTEGER*2 COUNT(48),KEYM(48),TIME,ATIME,IHC(20)
0004           LOGICAL*1 IREC6,IREC7
0005           DATA KEYM /48*0/
0006            DATA IJ /1/
0007            DATA ATIME /0/
0008           DATA COUNT /48*0/
0009         DATA ITEX /0/
0010          DATA IHC /20*0/
0011           IT=(TIME/60) +1
0012         IF(IT.LT.IJ)ITEX=24
0014         IT=IT+ITEX
0015           IF(IT.GT.IJ)COUNT(IJ)=COUNT(IJ)
0017           IJ=IT
0018           IF( IHC(IUSER).GT.0) GO TO 20
0020          IF(IREC7.NE.5) RETURN
0022          COUNT(IT)= COUNT(IT) +1
0023          IHC(IUSER)=1
0024          RETURN
0025  20        IF(COUNT(IT).GT.KEYM(J1)) KEYM(IT)=COUNT(IT)
0027         IF(IREC7.NE.6) RETURN
0029          COUNT(IT)=COUNT(IT)-1
0030          IHC(IUSER)=0
0031  78      FORMAT(1X,207)
0032          RETURN
0033          END
```

```
FORTRAN IV       STORAGE MAP

NAME     OFFSET   ATTRIBUTES

COUNT    000074   INTEGER*2 ARRAY (48)
IHC      000164   INTEGER*2 ARRAY (20)
IUSER    000014   INTEGER*2 PARAMETER VARIABLE
IREC6    000016   LOGICAL*1 PARAMETER VARIABLE
IREC7    000020   LOGICAL*1 PARAMETER VARIABLE
TIME     000022   INTEGER*2 PARAMETER VARIABLE
ATIME    000236   INTEGER*2 VARIABLE
IJ       000234   INTEGER*2 VARIABLE
ITEX     000240   INTEGER*2 VARIABLE
IT       000250   INTEGER*2 VARIABLE

COMMON BLOCK /SUB7/     LENGTH 000140

KEYM     000000   INTEGER*2 ARRAY (48)
```

```
FORTRAN IV      V01C-03A

0001          SUBROUTINE READER(LREC,JREC,EOF)
      CVPS STATISTICS PACKAGE
0002            INTEGER*2 WCNT,BLK,CHAN,COUNT,REC(32),EOF
0003          LOGICAL*1 BUFF(512),LREC(64),CR
0004          LOGICAL*1 PP,MM,SS,AA,FF,TT,DD,IYES,NO
0005          DATA BLK /0/
0006          DATA NO /'N'/
0007          DATA PP/'P'/
0008          DATA MM /'M'/
0009          DATA SS /'S'/
0010          DATA AA /'A'/
0011          DATA FF /'F'/
0012          DATA TT /'T'/
0013          DATA DD /'D'/
0014          DATA IERR /0/
0015          DATA LKLI /0/
0016          DATA KLI /512/
0017          DATA CHAN /-1/
0018          DATA CR /'15/
0019            DATA BLK /0/
0020            DATA WCNT /256/
0021            DATA KLI /512/
0022            DATA COUNT /0/
0023          EOF=0
      CC      TYPE 980,JREC,EOF
0024  980     FORMAT(1X,517)
      C  INITIALIZE
0025          IF(LKLI.LT.0) GO TO 20
0027            IF(BLK.GT.0) GO TO 20
0029          CALL OPENER (CHAN)
      C       TYPE 980,KLI,BLK,JREAD,LKLI,MBLK,CHAN
0030            CALL INIT (KLI,BLK,JREAD,LKLI,MBLK,CHAN)
      C       TYPE 980 ,KLI,BLK,JREAD,LKLI,MBLK,CHAN
      C       GET NEXT RECORD
0031  20      CONTINUE
0032            IF(BLK.GT.MBLK) GO TO 30
0034           IF(KLI.GE.LKLI.AND.BLK.GE.MBLK) GO TO 30
0036          JREC=4
      C       TYPE 980,KLI,BLK,JREAD,LKLI,MBLK
0037           CALL READS (LREC,JREC,KLI,JREAD,BLK,CHAN)
0038           IF(JREAD.LT.0) GO TO 30
0040            CALL ERROR(LREC,KLI,IERR)
0041          IF(IERR.GT.30)GO TO 33
0043           IF(IERR.GT.25.AND.LKLI.LT.0) GO TO 33
0045            IF(IERR.GT.0) GO TO 20
0047            JREC=14+LREC(3)
0048          CALL READS (LREC,JREC,KLI,JREAD,BLK,CHAN)
0049          JREC2=14+JREC
      C       PRINT 200,LREC(1),(LREC(IU),IU=1,JREC2)
0050          IF(LREC(16).EQ.PP.AND.LREC(17).EQ.MM)LREC(6)=5
0052          IF(LREC(16).EQ.SS.AND.LREC(17).EQ.AA) LREC(6)=13
0054          IF(LREC(16).EQ.FF.AND.LREC(17).EQ.TT) LREC(6)=15
0056          IF(LREC(16).EQ.FF.AND.LREC(17).EQ.DD) LREC(6)=16
0058          IF(LREC(1).GT.20)LREC(1)=LREC(1)/10
0060  200     FORMAT(' LREC  ',4005)
0061          IF(JREAD.LT.0) GO TO 30
0063          RETURN
0064  30      CALL CLOSER(JREAD,CHAN,EOF)
0065            RETURN
0066  33      CONTINUE
0067          TYPE 34, IERR
0068  34      FORMAT(' THERE ARE ',I5,' CONSECUTIVE ERRORS ')
0069          TYPE 36,
0070  36      FORMAT (' DO YOU WISH TO TERMINATE, TYPE YES OR NO ')
0071          ACCEPT 37,IYES
0072  37      FORMAT(A1)
0073          IF(IYES.EQ.NO) GO TO 20
0075          GO TO 30
0076            END
```

```
FORTRAN IV       STORAGE MAP

NAME     OFFSET   ATTRIBUTES

REC      000022   INTEGER*2 ARRAY (32)
BUFF     000122   LOGICAL*1 ARRAY (512)
LREC     000014   LOGICAL*1 PARAMETER ARRAY (64)
JREC     000016   INTEGER*2 PARAMETER VARIABLE
EOF      000020   INTEGER*2 PARAMETER VARIABLE
#CNT     001146   INTEGER*2 VARIABLE
BLK      001122   INTEGER*2 VARIABLE
CHAN     001142   INTEGER*2 VARIABLE
COUNT    001150   INTEGER*2 VARIABLE
CR       001144   LOGICAL*1 VARIABLE
PP       001125   LOGICAL*1 VARIABLE
MM       001126   LOGICAL*1 VARIABLE
SS       001127   LOGICAL*1 VARIABLE
AA       001130   LOGICAL*1 VARIABLE
FF       001131   LOGICAL*1 VARIABLE
TT       001132   LOGICAL*1 VARIABLE
DD       001133   LOGICAL*1 VARIABLE
IYES     001326   LOGICAL*1 VARIABLE
NO       001124   LOGICAL*1 VARIABLE
IERR     001134   INTEGER*2 VARIABLE
LKLI     001136   INTEGER*2 VARIABLE
KLI      001140   INTEGER*2 VARIABLE
OPENER   000000   REAL*4    PROCEDURE
INIT     000000   INTEGER*2 PROCEDURE
JREAD    001330   INTEGER*2 VARIABLE
MBLK     001332   INTEGER*2 VARIABLE
READS    000000   REAL*4    PROCEDURE
ERROR    000000   REAL*4    PROCEDURE
JRECZ    001334   INTEGER*2 VARIABLE
CLOSER   000000   REAL*4    PROCEDURE
```

```
FORTRAN IV       V01C-03A

0001          SUBROUTINE CLOSEC(JREAD,CHAN,EOF)
0002            INTEGER*2 CHAN,EOF
0003            IF (JREAD.LE.-2)STOP ' READ ERROR'
0005            EOF=1
0006            CALL CLOSFC(CHAN)
0007            I=IFREEC(CHAN)
0008            RETURN
0009            END
```

```
FORTRAN IV       STORAGE MAP

NAME     OFFSET   ATTRIBUTES

JREAD    000014   INTEGER*2 PARAMETER VARIABLE
CHAN     000016   INTEGER*2 PARAMETER VARIABLE
EOF      000020   INTEGER*2 PARAMETER VARIABLE
CLOSEC   000000   REAL*4    PROCEDURE
I        000036   INTEGER*2 VARIABLE
IFREEC   000000   INTEGER*2 PROCEDURE
```

```
FORTRAN IV       V01C-03A

0001          SUBROUTINE READS(LREC,JREC,KLI,JREAD,BLK,CHAN)
0002            INTEGER*2 WCNT,BLK,CHAN,COUNT,REC(32)
0003          LOGICAL*1 BUFF(512),LREC(64),CR
0004            DATA ITIME /0/
0005            DATA NREC /0/
0006          DATA CR /'15/
0007            DATA WCNT /256/
0008                  DATA COUNT /0/
0009          NREC=1
      C       GET NEXT RECORD
0010   20     IREC=512-KLI
0011          KREC=IREC
0012            IF(IREC.GT.JREC) KREC=JREC
0014   100    FORMAT(1X,7I5)
0015    30    CONTINUE
0016            IF(KREC.LE.0) GO TO 54
0018   57       FORMAT('  DO LOOP')
0019          DO 35 I=NREC,KREC
0020          KLI=KLI+1
0021            IF(I.GT.64) GO TO 35
0023          LREC(I)=BUFF(KLI)
0024   101    FORMAT(1X,3I5)
0025   35       CONTINUE
0026            IF(JREC.GT.64)JREC=64
0028   54       CONTINUE
0029          NREC=KREC+1
0030          IF (KREC.GE.JREC) RETURN
0032            JBLK=BLK
0033           IF(JBLK.GT.1000)JBLK=JBLK-1000
0035   50       JREAD=IREAD#(WCNT,BUFF,JBLK,CHAN)
0036          IF(JREAD.LT.0) RETURN
0038          KLI=0
0039          BLK=BLK+1
0040          GO TO20
0041          END
```

```
FORTRAN IV       STORAGE MAP

NAME     OFFSET   ATTRIBUTES

REC      000030   INTEGER*2 ARRAY (32)
BUFF     000130   LOGICAL*1 ARRAY (512)
LREC     000014   LOGICAL*1 PARAMETER ARRAY (64)
JREC     000016   INTEGER*2 PARAMETER VARIABLE
KLI      000020   INTEGER*2 PARAMETER VARIABLE
JREAD    000022   INTEGER*2 PARAMETER VARIABLE
BLK      000024   INTEGER*2 PARAMETER VARIABLE
CHAN     000026   INTEGER*2 PARAMETER VARIABLE
WCNT     001136   INTEGER*2 VARIABLE
COUNT    001140   INTEGER*2 VARIABLE
CR       001134   LOGICAL*1 VARIABLE
ITIME    001130   INTEGER*2 VARIABLE
NREC     001132   INTEGER*2 VARIABLE
MREC     001170   INTEGER*2 VARIABLE
IREC     001172   INTEGER*2 VARIABLE
KREC     001174   INTEGER*2 VARIABLE
I        001176   INTEGER*2 VARIABLE
JBLK     001200   INTEGER*2 VARIABLE
IREAD#   000000   INTEGER*2 PROCEDURE
```

```
FORTRAN IV       V01C-03A

0001                SUBROUTINE INIT (KLI,MLK,JREAD,LKLI,MBLK,CHAN)
0002          COMMON /OPTION/ IOPT
0003          INTEGER*2 REC(32),MLK,BITS(3),TEN,RECS,YEAR,CHAN
0004          DATA TEN /20/
0005          DATA BITS /"37,"1740,"76000/
0006         TYPE 980,TEN,KLI,JREAD,MLK,CHAN
0007  980    FORMAT('    INIT    ',717)
0008          CALL READS(REC,TEN,KLI,JREAD,MLK,CHAN)
0009          IF(JREAD.LT.0) RETURN
0011          CALL MINUTE(REC(2),REC(3),ITIME,ITYME)
0012          CALL MINUTE(REC(7),REC(8),JTIME,JTYME)
0013          YEAR=(REC(1).AND.BITS(1)) +72
0014          MO=REC(1).AND.BITS(3)
0015          MO=MO/1024
0016          IDAY=REC(1).AND.BITS(2)
0017          IDAY=IDAY/32
0018          MLK=REC(4)
0019         RECS=REC(5)
0020          IYEAR=(REC(6).AND.BITS(1)) + 72
0021          IMO=REC(6).AND.BITS(3)
0022          IMO=IMO/1024
0023          KDAY=REC(6).AND.BITS(2)
0024         KDAY=KDAY/32
0025         LKLI=REC(10)
0026         MBLK=REC(9)
0027         IF(REC(1).GE.0) GO TO 513
0029         TYPE 514,
0030         PRINT 514,
0031  514    FORMAT(' DATA APPEARS TO START IN BLOCK ZERO ')
0032         MBLK=1000
0033         RECS=0
0034         LKLI=-4
0035         BLK=0
0036  513    CONTINUE
0037           PRINT 72,YEAR,MO,IDAY,MLK,RECS,ITIME
0038           PRINT 75,IYEAR,IMO,KDAY,MBLK,LKLI,JTIME
0039  72       FORMAT('   START  DATE ',313,'   BLK  ',I4,' BYTE',
     1   I4,'  TIME  ',I4)
0040  75       FORMAT('  FINISH DATE ',313,'  BLK  ',I4, ' BYTE  ',
     2   I4,'  TIME  ',I4)
0041           JOPT=IOPT.AND.8
0042           IF(JOPT.LE.0) GO TO 717
0044         TYPE 780,
0045           PRINT 780,
0046  780      FORMAT(' ENTER BLOCK,BYTE')
0047           ACCEPT765, BLK,RECS
0048  765      FORMAT(2I4)
0049           IF(BLK.GT.MBLK)MBLK=BLK+1000
0051  717      CONTINUE
0052           KLI=512
0053           CALL READS(REC,TEN,KLI,JREAD,BLK,CHAN)
0054           KLI=512-RECS
0055           IF(KLI.GE.512)BLK = BLK+1
0057         MBLK=MBLK+1
0058           RETURN
0059           END
```

```
FORTRAN IV      STORAGE MAP

NAME     OFFSET  ATTRIBUTES

REC      000030  INTEGER*2 ARRAY (32)
BITS     000130  INTEGER*2 ARRAY (3)
KLI      000014  INTEGER*2 PARAMETER VARIABLE
BLK      000016  INTEGER*2 PARAMETER VARIABLE
JREAD    000020  INTEGER*2 PARAMETER VARIABLE
LKLI     000022  INTEGER*2 PARAMETER VARIABLE
MBLK     000024  INTEGER*2 PARAMETER VARIABLE
CHAN     000026  INTEGER*2 PARAMETER VARIABLE
TEN      000136  INTEGER*2 VARIABLE
RECS     000444  INTEGER*2 VARIABLE
YEAR     000446  INTEGER*2 VARIABLE
READS    000000  REAL*4    PROCEDURE
MINUTE   000000  INTEGER*2 PROCEDURE
ITIME    000450  INTEGER*2 VARIABLE
ITYME    000452  INTEGER*2 VARIABLE
JTIME    000454  INTEGER*2 VARIABLE
JTYME    000456  INTEGER*2 VARIABLE
MO       000460  INTEGER*2 VARIABLE
IDAY     000462  INTEGER*2 VARIABLE
IYEAR    000464  INTEGER*2 VARIABLE
IMO      000466  INTEGER*2 VARIABLE
KDAY     000470  INTEGER*2 VARIABLE
JOPT     000472  INTEGER*2 VARIABLE

COMMON BLOCK /OPTION/   LENGTH 000002

IOPT     000000  INTEGER*2 VARIABLE
```

```
FORTRAN IV       V01C-03A

0001          SUBROUTINE OPENFR(CHAN)
0002          REAL*4 DBLK(2)
0003            INTEGER*2 CHAN,COUNT
0004            DATA DBLK /6RDKUTHA,APCH DAT/
0005            CHAN = IGETC()
0006            IF(CHAN.LT.0) STOP 'CAN NOT ALLOCATE CHANNEL '
0008            IF= IFETCH (DBLK)
0009            TYPE 56,IF
0010   56       FORMAT(1X,I4)
0011            IF (IF.GT.0) STOP 'FETCH ERROR'
0013            IL = LOOKUP (CHAN,DBLK,COUNT)
0014            IF (IL.LT.0) STOP   'LOOKUP ERROR '
0016          RETURN
0017            END
```

```
FORTRAN IV       STORAGE MAP

NAME     OFFSET   ATTRIBUTES

DBLK     000016   REAL*4     ARRAY (2)
CHAN     000014   INTEGER*2  PARAMETER VARIABLE
COUNT    000120   INTEGER*2  VARIABLE
IGETC    000000   INTEGER*2  PROCEDURE
IF       000122   INTEGER*2  VARIABLE
IFETCH   000000   INTEGER*2  PROCEDURE
IL       000124   INTEGER*2  VARIABLE
LOOKUP   000000   INTEGER*2  PROCEDURE
```

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