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IBM System/360 Disk Operating System
Vocabulary File Utility Program
for the IBM 7772 Audio Response Unit

Program Number 360N-UT-472

This document provides information on the Vocabulary File Utility Program for the IBM 7772 Audio Response Unit, that enables the user to create, organize, and update the file of word representations from which the audible responses of the IBM 7772 Audio Response Unit are formed.

PREFACE

This document contains information on the preparation and operation of the Vocabulary File Utility Program for the IBM 7772 Audio Response Unit.

This program operates under the IBM System/360 Disk Operating System. It enables the user to create his own Operative Vocabulary File on an IBM 2311 or IBM 2314 Direct Access Storage Device, and to update it. The Operative Vocabulary File is made up of the digital representations of the words to be voiced in simulated speech by IBM 7772 Audio Response Units. This file is created from Input Vocabulary Files supplied by IBM in the form of punched cards or magnetic tapes. The program also provides for the listing of the IBM Input Vocabulary Files and of the Operative Vocabulary File.

The reader should have an understanding of the IBM System/360 Disk Operating System, of which this utility program is a component, and be familiar with the contents of the following publications:

IBM System/360 Disk Operating System - System Control and System Service Programs, Form C24-3428
IBM System/360 Disk Operating System, Data Management Concepts, Form C24-3427
IBM 7772 Audio Response Unit Vocabulary, Form A27-2710
IBM System/360 Component Description, IBM 7772 Audio Response Unit, Form A27-2711

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Significant changes or additions to the specifications contained in this publication will be reported in subsequent revisions or Technical Newsletters.

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TABLES

The IBM 7772 Audio Response Unit connected to an IBM System/360 provides responses to inquiries originated at telephone-type terminals. These responses are audible messages composed of natural language words. In general, these words are recorded in an Operative Vocabulary File on an IBM 2311 or 2314 Direct Access Storage Device.

The user creates his Operative Vocabulary File from the IBM Input Vocabulary Files, using the Vocabulary File Utility Program referred to in this document as VOC72UT.

VOC72UT

VOC72UT is a System/360 program, which is a component of the System/360 Disk Operating System and uses the facilities provided by it, including logical IOCS and supervisor services.

I/O device description and assignment, and label processing specifications are accomplished with standard DOS procedures.

VOC72UT resides on disk and can be stored in either the relocatable library or the core-image library.

VOC72UT FUNCTIONS

Using the Input Vocabulary Files distributed by IBM, in conjunction with appropriate control information supplied by the user, VOC72UT:

- Lists the characteristics of each word recorded in the Input Vocabulary Files (IVF list function)
- Builds the Operative Vocabulary File by selecting specified words from the IBM Input Vocabulary Files (build function)
- Updates the Operative Vocabulary File by adding or inserting new words, and by replacing existing words with new digital representations (update function)
- Lists the characteristics and disk address of each word in the Operative Vocabulary File (OVF list function)

INPUT VOCABULARY FILES

The Input Vocabulary Files, supplied by IBM in the form of punched cards or magnetic tapes, contain the digitally-coded vocabulary from which the user will create his own Operative Vocabulary File(s).

Two types of vocabulary related to the same language may be delivered:

- Standard vocabulary supplied to each customer
- Special vocabulary supplied to a customer on special request

OPERATIVE VOCABULARY FILE

The user creates an Operative Vocabulary File by using VOC72UT, which selects and orders Input Vocabulary File words, as specified in control statements, and loads them onto disk.

CONTROL INFORMATION

Control information necessary to run VOC72UT is provided by the user in the form of two types of statement:

- Job control statements to prepare VOC72UT execution
- VOC72UT control statements to select VOC72UT functions

VOC72UT LINKAGE EDITING

Linkage editing consists of the operations to be executed by the user to transfer VOC72UT from the relocatable library to the core-image library, either on a temporary or a definite basis.

SUPPLEMENTARY INFORMATION

Supplementary information about VOC72UT is given in four appendixes:

- Appendix A gives the formulas used to calculate the space to be reserved for direct access files stored on disk.
- Appendix B shows the contents of VOC72UT modules.
- Appendix C describes sample control card decks corresponding to each VOC72UT function, and shows sample listings of the Input and Operative Vocabulary Files.
- Appendix D lists the messages which can be sent to the operator, and describes the action to be taken.

VOC72UT requires an IBM System/360 processing unit with at least 16,384 bytes of main storage, and uses the Standard instruction set.

The following minimum I/O configuration is required to run VOC72UT:

- A card reader (IBM 1442, 2501, 2520, or 2540) or an IBM 2400-Series Magnetic Tape Unit (9-track or 7-track with data converter feature)
- An IBM 2311 or 2314 Direct Access Storage Device
- An IBM 1052 Printer-Keyboard
- A printer (IBM 1403, 1404, or 1443) or an IBM 2400-Series Magnetic Tape Unit (9-track or 7-track with data converter feature)

Table 1. System/360 Main Storage Requirements

VOC72UT	SPACE IN SYSTEM/360 MAIN STORAGE		
FUNCTION	FUNCTION	BUFFER	WORK AREA
Build	7.3 K	See note 1	$\frac{3\ N}{8}$ See note 2
Update	7.3 K	See note 3	
IVF List	5.6 K	None	
OVF List	5.8 K	None	

MAIN STORAGE REQUIREMENTS

The space in System/360 main storage required for a VOC72UT run, in addition to that required for the supervisor, is shown in Table 1.

Note 1: The buffer area for Operative Vocabulary File I/O operations cannot be greater than either the available space in System/360 main storage (after the work area has been created and the build function has been loaded), or the capacity of one track of the Direct Access Storage Device used, whichever is the smaller. The track capacity is 3625 bytes for the IBM 2311, 7294 bytes for the IBM 2314.

Note 2: The length of the work area is related to N, the total number of words in the Input Vocabulary File(s) used.

Note 3: The buffer area for Operative Vocabulary File I/O operations cannot be greater than either the available space in System/360 main storage (after the update function has been loaded), or the disk track capacity of one track of the Direct Access Storage Device used, whichever is the smaller.

VOCABULARY FILE CHARACTERISTICS

This section describes the characteristics of the Input and Operative Vocabulary Files, which VOC72UT can list, as explained further in the section "VOC72UT Functions."

INPUT VOCABULARY FILE CHARACTERISTICS

Input Vocabulary Files are supplied by IBM as either punched-card files or card-image magnetic-tape files. Both forms have the same file and record characteristics. Each word in an Input Vocabulary File is represented by a sequential set of records in EBCDIC code; the first record in the set is the header record, and the subsequent records are the DCV (Digitally Coded Voice) records.

HEADER RECORD

The header record provides the different characteristics of a word, as described in Table 2.

Table 2. Header Record Format

COLUMNS	INFORMATION
1-17	This field is reserved for IBM use only.
18-19	Number of DCV records following the header record.
20-23	Length, in bytes, of the digital word representation.
24-28	Duration, in milliseconds, of the corresponding audible output.
29-30	Reprocess level: identifies a version of the word representation.
31-72	Word spelling (42-character field).
73-74	Speaker code: a two-character code indicating the speaker's sex and language.
75-78	Primary identifier: a four-figure number specifying the position of the word in the Input Vocabulary File.
79-80	Secondary identifier: a two-figure number specifying the position of the record in the set. It always takes the value 00.
Note: Of the above information, VOC72UT control statements only require the speaker code and the primary identifier (see the section "Control Information").	

DCV RECORDS

DCV records contain the Digitally Coded Voice word representation which is transformed into simulated speech after it has been retrieved from the Operative Vocabulary File and "written" on the 7772 Audio Response Unit. Each DCV record has the format shown in Table 3.

OPERATIVE VOCABULARY FILE CHARACTERISTICS

The following describes the contents and organization of the Operative Vocabulary File.

OPERATIVE VOCABULARY FILE CONTENTS

The Operative Vocabulary File consists of a descriptive index and word representations.

Descriptive Index

Most information contained in the Input Vocabulary File header records, and requested for a correct operation of VOC72UT, is automatically placed in the descriptive index. The descriptive index is not accessible to the user.

Word Representations

The parts of DCV word representations corresponding to each word selected by the user are grouped into a single record, and are then written into the Operative Vocabulary File. This record cannot be split up between DASD tracks. When the available space on a track is not sufficient to contain it, the record is written on the following track. Therefore, the length of any DCV word representation must not exceed 3625 bytes (track capacity for an IBM 2311) or 7294 bytes (for an IBM 2314), depending on which device is used.

Table 3. DCV Record Format

COLUMNS	INFORMATION
1-12	This field is reserved for IBM use only.
13-72	Part of the DCV word representation.[1]
73-74	Speaker code: a two-character code indicating the speaker's sex and language.[2]
75-78	Primary identifier: a four-figure number specifying the position of the word in the Input Vocabulary File.[2]
79-80	Secondary identifier: a two-figure number specifying the relative position of the DCV record in the set. It may take a value from 01 through 99.

[1]A word representation is generally too long to be contained in the 60-position field of one DCV record; therefore, several DCV records are necessary, and positions 13-72 in each record contain a part of the word representation. These DCV records must have their secondary identifiers ordered in a natural sequence; this sequence starts with 01 and terminates with the value indicated in positions 18-19 of the header record.

[2]The speaker code and the primary identifier always take the same value in the header and DCV records corresponding to a word.

OPERATIVE VOCABULARY FILE ORGANIZATION

VOC72UT enables the user to group the words selected from the Input Vocabulary Files into tables and/or the residual vocabulary. Thus, the Operative Vocabulary File may be composed of a residual vocabulary only, vocabulary tables only, or a residual vocabulary plus vocabulary tables.

Vocabulary Tables

One or more vocabulary tables can be created by the user. The word representations for a table are recorded in this table in the same order as they are specified in the VOC72UT control statements. The same word can be included in different tables.

The user must assign a different name to each vocabulary table. This table name is made up of one to eight alphanumeric characters, the first one being alphabetic.

To write a word on the IBM 7772 Audio Response Unit, its digitally coded representation must be in main storage. It can be retrieved from the Operative Vocabulary File only when the disk address is known. This address is determined when the Operative Vocabulary File is built.

The file is organized in such a way as to minimize the number of parameters necessary to retrieve word representations. If the elements of a table are related either by group (numbers, letters, months) or by specific purpose (special vocabulary, messages), only a few parameters are necessary for the retrieval of one or several elements. Examples of word retrieval are shown in the following paragraphs.

Retrieving a Message Whose Text is Predetermined: The words can be recorded in a table in the order in which they appear in the message. In this way, the address of any word in the message can be expressed as the address of the first word plus an index value.

The message can be retrieved by specifying the address of the first word of the message and the number of words in the message. The number of words is used to establish the maximum value of the index.

Retrieving Individual Words From an Ordered Set: Related words can be recorded in a table in natural order (for example, the digits 0, 1, 2,...,9 or the months January, February, March,...,December).

Assuming a table of digits, a number can be retrieved by specifying only the number itself and the address of the first element in the table (in this case, 0). The value of a digit in the specified number is used as an address index to retrieve that digit

(that is, 0 plus the address of 0 is used to retrieve the digit 0; 1 plus the address of 0 is used to retrieve the digit 1; etc.).

The above procedure is valid for any table whose elements can be expressed as an ordered set of digits.

In the two above examples, it is assumed that the words are recorded on one track. When several tracks are required to record a message or an ordered set of words, a greater number of parameters will be necessary to retrieve them, but the procedure will be the same.

Residual Vocabulary

All word representations required by the user, and which have not been specified for inclusion in vocabulary tables, are grouped intos a general purpose set or residuum, referred to as RESIDUUM in VOC72UT control statements.

Word representations are placed in the residuum in the same order as they are read from the Input Vocabulary Files.

VOC72UT can perform four different functions which must be specified by the user in VOC control statements (see the section "Control Information"):

- List the Input Vocabulary Files (IVF list function)
- Build the Operative Vocabulary File (build function)
- Update the Operative Vocabulary File (update function)
- List the Operative Vocabulary File (OVF list function)

One or more functions can be requested by the user in one control card deck, and can thus be performed in one VOC72UT run.

IVF LIST FUNCTION

The characteristics of all the words recorded in an Input Vocabulary File supplied by IBM can be printed by specifying the IVF list function in a VOC72UT control statement. These characteristics are:

- The speaker code and primary identifier
- The word spelling
- The duration, in milliseconds, of the audible output
- The length, in bytes, of the digital word representation
- The number of DCV records

A sample listing of an Input Vocabulary File is shown in Appendix C, Section 1.

BUILD FUNCTION

By specifying the build function in a VOC72UT control statement, the user can build an Operative Vocabulary File on disk. This file is obtained by selecting the required word representations from the Input Vocabulary Files supplied by IBM, and grouping them in the vocabulary tables or in the residuum, as desired.

Selection of word representations from the Input Vocabulary Files, and creation of vocabulary tables are options which can be specified in VOC72UT control statements. If selection is not specified, all input word representations are included in the Operative Vocabulary File; if vocabulary tables are not specified, the Operative Vocabulary File will be made up of the residuum.

UPDATE FUNCTION

By specifying the update function in a VOC72UT control statement, the user can modify his Operative Vocabulary File, as follows:

- Add new word representations at the end of the vocabulary tables or the residuum
- Insert new word representations within the vocabulary tables
- Replace word representations in the vocabulary tables or the residuum with improved or customer-adapted word representations or new word representations

Updating is only possible when space is available in the disk area allocated to the vocabulary table or the residuum. For this purpose, space can be reserved at the end of any vocabulary table by a specification in the SELECT statement, or at the end of the residuum by specifying sufficient space for the Operative Vocabulary File in the XTENT job control statement. (See the section "Control Information").

However, even though no spare tracks have been reserved, a vocabulary table or the residuum can still be updated on condition that the last track has not been completely filled. It is the user's responsibility to check the resulting Operative Vocabulary File to determine whether an update operation is possible.

When updating an Operative Vocabulary File by replacing words or by inserting new words, the disk addresses of the previously recorded words may change.

OVF LIST FUNCTION

After having created or updated his Operative Vocabulary File, the user can list all or part of it by specifying the OVF list function in VOC72UT control statements. Thus, for any word of the Operative Vocabulary File or for any word included in a vocabulary table or in the residuum, the following characteristics will be listed:

- The sequence number of a word in a vocabulary table or the residuum (This number is referred to as the "relative location.").
- The characteristics: spelling, duration, length.
- The disk address of the DCV word representation. This address is expressed in hexadecimal representation under two possible formats:
  -TTR, where TT represents the relative track number in the diskpack, and R the record number in the track.
  -CHHR, where C represents the cylinder number, HH the track number in the cylinder, and R the record number in the track.

This information is needed for subsequent retrieval of word representations.

A sample listing of the Operative Vocabulary File is shown in Appendix C.

Since VOC72UT is a component of the System/360 Disk Operating System, the standard operating system procedures and specifications are required to load it, to describe its I/O device requirements, and to initiate its execution.

System/360 devices must be assigned to logical units necessary to perform VOC72UT functions. This is done by specifications in job control statements (see the section "Control Information").

Table 4 shows the System/360 device assignment and purpose, in conjunction with logical units and VOC72UT functions.

Table 4. System/360 Device Assignment and Purpose

LOGICAL UNITS	SYSTEM/360 DEVICES	PURPOSE	VOC72UT FUNCTIONS
SYSLOG	1052 Printer-Keyboard	To print messages sent to the operator, and to type operator answers	All functions
SYSIPT	1442 Card Reader 2501 Card Reader 2520 Card Reader 2540 Card Reader 2400-Series Magnetic Tape Unit	To read the system input file made up of control statements and to read the Input Vocabulary[1]	All functions
SYSLST	1403 Printer 1404 Printer 1443 Printer 2400-Series Magnetic Tape Unit	To list the Input and Operative Vocabulary Files	Input and Operative Vocabulary File list functions
SYS004	2400-Series Magnetic Tape Unit	To read the Input Vocabulary Files[1]	Operative Vocabulary File build and update functions, and Input Vocabulary File list function
SYSnnn	2311 or 2314 Direct Access Storage Device	To be used as a utility work file[2]	Operative Vocabulary File build and update functions
SYSppp	2311 or 2314 Direct Access Storage Device	To record the Operative Vocabulary File	Operative Vocabulary File build, update, and list functions

[1]If the Input Vocabulary is in the form of punched cards, it can be added to the control card deck; the resulting deck is the system input file (which may be copied on a magnetic tape) to be read from SYSIPT. If the Input Vocabulary is in the form of a magnetic tape file, it must be read from SYS004 while the control statements must be read from SYSIPT.

[2]SYSnnn is always required for Operative Vocabulary File updating. It is required for Operative Vocabulary File building only when tables are to be created. Building an Operative Vocabulary File made up of only a residuum does not require SYSnnn. A different amount of disk storage must be reserved for SYSnnn and SYSppp; this is done by the user in the XTENT job control statement. SYSnnn and SYSppp must be assigned to the same type of Direct Access Storage Device.

CONTROL INFORMATION

To run VOC72UT, the user must supply control information in the form of control statements. These statements specify the VOC72UT functions and/or options which are required by the user. The Disk Operating System control statements are referred to as "job control statements." The statements specifying the requested functions and/or options of VOC72UT are referred to as "VOC72UT control statements."

The format and use of all these statements are described in the following paragraphs.

JOB CONTROL STATEMENTS

A VOC72UT run requires the following job control statements, whose formats are described in the publication IBM System/360 Disk Operating System, System Control and System Service Programs, Form C24-3428.

// JOB
This statement is always required.

// TPLAB
This statement is required for tape label processing, when applicable.

// DLAB
This statement is required for disk label processing. The type specified must be DA.

// XTENT
This statement is required when disks are used.

// ASSGN
This statement is required for unit assignment.

// EXEC
This statement is always required.

// UPSI
This statement is required. It has the following format:

// UPSI ndm0pppp

where:

n=0 when the entire input vocabulary is on SYS004.

n=1 when all or part of the input vocabulary is on SYSIPT.

d=0 when IBM 2311 DASD is used

d=1 when IBM 2314 DASD is used

m=0 when no label is assigned to VOCTRS.

m=1 when a label is assigned to VOCTRS.

pppp is the binary representation of the number of input vocabulary tapes to be read one after the other from SYS004.

// VOL
This statement is required for label processing. The file names required by VOC72UT are:

VOCTRS for Input Vocabulary Files on tape

VOCUT for Utility Work File

VOCRES for Operative Vocabulary File

/*
This statement is required for Input Vocabulary Files on cards.

/&
This statement is always required to indicate the end of a job.

VOC72UT CONTROL STATEMENTS

Three types of VOC72UT control statement may be required for a VOC72UT run:

- VOC statements, to initiate a VOC72UT function
- SELECT statements, to specify the organization of an Operative Vocabulary File to be built
- MODIFY statements, to specify how to update an Operative Vocabulary File

CONVENTIONS

The following notation is used in the description of VOC72UT control statement formats:

- Brackets [ ] enclose elements which need not be present if not applicable.
- Punctuation marks and upper case letters indicate information which must be punched as shown.
- Lower case letters and words represent information which must be supplied by the user.
- An ellipsis (...) indicates that a variable number of specifications of the type preceding the ellipsis can be specified.

A VOC72UT control statement may require more than one punched card. A punch in column 72 of a card indicates that a continuation card follows. A parameter cannot be split between two cards. Therefore, if column 72 has a punch, column 71 must have a blank or a comma to indicate that the continuation card contains a new parameter. The first 15 columns of each continuation card must be left blank.

VOC STATEMENTS

Five different VOC statements can be used, four of them to specify the four functions of VOC72UT, and one to indicate the end of a VOC72UT run. They have the following general format:

```
// VOC function[,parameter]...
```

positions 1,2	//
position 3	blank
positions 4-6	VOC
position 7	blank
positions 8,9	function
positions 10-71	comma followed by other parameters separated by commas, with no embedded blanks

// VOC
means a VOC72UT function is requested. VOC must be immediately preceded and followed by one blank.

function
represents two alphabetic characters specifying the requested VOC72UT function.

parameter
represents input vocabulary parameters or table names, as required. This is explained in the paragraphs dealing with the relevant functions.

IVF List Function

The listing of an Input Vocabulary File must be requested by a VOC statement with the following format:

```
// VOC LI
```

where:

LI
identifies the requested VOC72UT function as listing an Input Vocabulary File.

As a part of the IVF list function, the validity of Input Vocabulary File records is checked. A diagnostic will be issued under the following circumstances (the diagnostic follows the item):

1. A record set representing a word is incomplete.

   ```
   *** INCOMPLETE SEQUENCE
       xx CARDS ARE MISSING AFTER  yyyyyy
   ```

   xx
   is the number of cards missing.

   yyyyyy
   is the last word identifier.

2. A record set representing a word is out of order.

   ```
   *** INVALID SEQUENCE            yyyyyy
                                   yyyyyy
                                   yyyyyy
   ```

   yyyyyy
   yyyyyy
   yyyyyy
   is the sequence of the word identifiers out of order.

3. A record is neither a header record nor a DCV record.

   ```
   *** INVALID VOCABULARY RECORD
   ```

   The corresponding record is printed.

Build Function

The build function, requested to create the Operative Vocabulary File, must be specified by a VOC statement with the following format:

// VOC BL[,input vocabulary parameter]...

where:

BL
identifies the requested VOC72UT function as building the Operative Vocabulary File.

input vocabulary parameter
defines the input vocabulary related to a given language, according to the following format:

a(b,c-d)

where:

a
is the two-character speaker code specifying the sex and the language of the speaker.

b
is the highest primary identifier in the standard vocabulary.

c
is the lowest primary identifier in the special vocabulary.

d
is the highest primary identifier in the special vocabulary.

The leading zeros in the four-character primary identifiers need not be punched.

The hyphen(-)
is only used as a connector.

The terms "a", "b", and "c-d" may be omitted under the following conditions:

"a" may be omitted when there is only one language vocabulary.

"b" is omitted when there is no standard vocabulary.

"c-d" is omitted when there is no special vocabulary.

If the input vocabulary parameter is omitted, a 1000-word standard vocabulary is assumed.

The VOC BL statement may be followed by one or more SELECT statements, to specify the characteristics of the vocabulary tables and the residuum (see "SELECT statement").

Update Function

The updating of the Operative Vocabulary File must be specified by a VOC statement with the following format:

// VOC UP

where:

UP
identifies the requested VOC72UT function as updating the Operative Vocabulary File.

This statement must be followed by one or more MODIFY statements, to specify the changes to the Operative Vocabulary File (see "MODIFY statement").

OVF List Function

The listing of the Operative Vocabulary File must be requested by a VOC statement with the following format:

// VOC LO[,table name] [,(CHHR) / (TTR)]

where:

LO
identifies the requested VOC72UT function as listing the Operative Vocabulary File.

table name
indicates the name of the Operative Vocabulary File table to be listed; if the content of the residuum is to be listed, the word RESIDUUM must be punched instead of a table name.

CHHR or TTR
indicates under which format the disk address are to be provided.

Note: If table name or RESIDUUM is omitted, the entire Operative Vocabulary File will be listed.

End of VOC72UT Run

The end of a VOC72UT run must be indicated by one VOC statement with the following format:

// VOC ND

SELECT STATEMENT

One or more SELECT statements may be associated with the VOC BL statement, to

specify the contents and symbolic names of the Operative Vocabulary File tables. If no SELECT statement follows the VOC BL statement, the entire Input Vocabulary File(s) will be placed in the residuum.

The SELECT statement has the following format:

```
SELECT table name[(nst)][,wi]...
```

position 1	blank
positions 2-7	SELECT
position 8	blank
positions 9-71	other parameters separated by commas, with no embedded blanks

SELECT
: means that word representations are to be selected from the Input Vocabulary Files and included in the Operative Vocabulary File. SELECT must be immediately preceded and followed by one blank.

table name
: is the name given by the user to a vocabulary table which will contain the word representations of the words specified in the SELECT statement. If the word RESIDUUM is punched instead of a vocabulary table name, these word representations will be placed in the residuum. If RESIDUUM is not followed by any parameters, the entire Input Vocabulary Files (less the table contents, if any) will be placed in the residuum. In this case, the statement SELECT RESIDUUM must be the first SELECT statement.

nst
: specifies the number of spare tracks (from 1 to 255) to be reserved for future update operations in the named vocabulary table. These spare tracks immediately follow the tracks used to record the elements of this table. This parameter must be omitted when RESIDUUM is punched instead of a vocabulary table name.

wi
: denotes one word identifier, or two word identifiers separated by a hyphen (-). A word identifier consists of the speaker code and the primary identifier. When the Input Vocabulary Files contain only one language, the speaker code may be omitted in the word identifiers. The word identifiers indicate the word representations, or the sequence of word representations, to be selected from the Input Vocabulary Files and included in the named vocabulary table or in the residuum. In the vocabulary tables, the word representations are in the same sequence as the word identifiers in the SELECT statement. In the residuum, the word representations are placed in the same sequence as they are read from the Input Vocabulary Files.

Note: When a word identifier sequence is specified in a SELECT statement, the word identifiers defining this sequence must have the same speaker code, if required, and the primary identifier of the second word identifier must be greater than that of the first one.

MODIFY STATEMENT

One or more MODIFY statements must follow the VOC UP statement, to specify the changes to the Operative Vocabulary File:

- Word addition (ADD)
- Word replacement (REPLACE)
- Word insertion (INSERT)

Therefore, three types of MODIFY statement may be used, depending upon the change requested by the user.

The MODIFY statement has the following general format:

position 1	blank
positions 2-7	MODIFY
position 8	blank
positions 9-71	other parameters separated by commas, with no embedded blanks

Word Addition (ADD)

The addition of one or more words to a vocabulary table or to the residuum is requested by a MODIFY statement with the following format:

```
MODIFY ADD,table name[,wi]...
```

where:

ADD
: means that word representations from the Input Vocabulary Files are to be added to the Operative Vocabulary File, in the space reserved at the end of a table or of the residuum. ADD must be separated from MODIFY by one blank.

table name
indicates the name of a vocabulary table to which new word representation(s) are to be added; they will be added to the residuum if the word RESIDUUM is punched instead of a vocabulary table name.

wi
denotes one word identifier, or two word identifiers separated by a hyphen (-). A word identifier consists of the speaker code and the primary identifier. When the Input Vocabulary Files contain only one language, the speaker code may be omitted in the word identifiers. The word identifiers indicate the word representation, or the sequence of word representations, selected from the Input Vocabulary Files and to be added to the Operative Vocabulary File, in the sequence indicated.

If the Input Vocabulary Files consist of a card deck instead of a magnetic tape, the word identifier(s) must be omitted, and the cards containing the new word, or sequence of new words, must follow the MODIFY ADD statement.

Note: When a word identifier sequence is specified in a MODIFY statement, the word identifiers defining this sequence must have the same speaker code, if required, and the primary identifier of the second word identifier must be greater than that of the first one.

Word Replacement (REPLACE)

The replacement of a word in the Operative Vocabulary File must be requested by a MODIFY statement with the following format:

```
MODIFY REPLACE,table name,location[,wi]
```

where:

REPLACE
means that one word representation in a vocabulary table or in the residuum is to be replaced by one word representation from an Input Vocabulary File. REPLACE must be separated from MODIFY by one blank.

table name
indicates the name of the vocabulary table in which one word representation is to be replaced. If the word RESIDUUM is punched instead of a vocabulary table name, a word representation located in the residuum will be replaced.

location
specifies the relative location, in a vocabulary table or in the residuum, of a word representation to be replaced.

wi
denotes one word identifier as previously defined under "Word Addition (ADD)." This word identifier defines a word in an Input Vocabulary File (recorded on magnetic tape), the representation of which is to be included in a vocabulary table or the residuum.

Note: If the new word is punched on cards, these cards must immediately follow the statement, and the word identifier must be omitted.

Word Insertion (INSERT)

The insertion of a word in a vocabulary table must be requested by a MODIFY statement with the following format:

```
MODIFY INSERT,table name,location[,wi]
```

where:

INSERT
means that a word representation, selected from the Input Vocabulary Files, is to be inserted in the named vocabulary table. INSERT must be separated from MODIFY by one blank.

table name
indicates the name of the vocabulary table in which a word representation is to be inserted. (This cannot be the residuum.)

location
is the relative location, in the vocabulary table, after which the new word representation is to be inserted.

wi
denotes one word identifier as previously defined under "Word Addition (ADD)," indicating the new word to be inserted in the vocabulary table.

Note: If the new word is punched on cards, these cards must immediately follow the statement, and the word identifier must be omitted.

VOC72UT is made up of eight modules stored in the relocatable library. The first module includes all the linkage editor control statements required by VOC72UT linkage editing. The other modules constitute VOC72UT itself. The names of these eight modules and their contents are given in Appendix B.

The following paragraphs specify the control statements to be used to:

- Store VOC72UT in the core-image library
- Run VOC72UT when it is stored in the relocatable library

STORING VOC72UT IN THE CORE IMAGE LIBRARY

The following control statements must be used:

```
// JOB
```
specifies the user-defined job name.

```
// ASSGN
```
assigns input/output devices, if necessary.

```
// OPTION CATAL
```
indicates that VOC72UT is to be catalogued in the core-image library.

```
INCLUDE IJNVOC
```
identifies the program modules to be link-edited.

```
// EXEC LNKEDT
```
executes the linkage-editor program.

```
/&
```
specifies the end of the job.

RUNNING VOC72UT (WHEN STORED IN THE RELOCATABLE LIBRARY)

The following control statements are required to run VOC72UT when it is stored in the relocatable library.

```
// JOB
```
specifies the user-defined job name.

```
// ASSGN
```
assigns input/output devices.

```
// VOL
// DLAB
// XTENT
```
define SYSnnn and SYSppp, if necessary.

```
// VOL
// TPLAB
```
define SYS004 if the Input Vocabulary File is labeled.

```
// UPSI
```
specifies Input Vocabulary File information.

```
// OPTION LINK
```
prepares linkage-editing.

```
// EXEC LNKEDT
```
executes the linkage editor program.

```
// EXEC
```
executes VOC72UT.

```
.....
.....   Utility control statements
.....
```

```
/&
```
specifies the end of the job.

To execute VOC72UT when it is stored in the core-image library, the control statement sequence is the same as above, except that the four statements // OPTION LINK through // EXEC must be replaced by:

```
// OPTION
```
specifies the job control option.

```
// EXEC VOC72UT
```
executes VOC72UT.

APPENDIX A. AUXILIARY STORAGE REQUIREMENTS

The order of magnitude of the area to be reserved (using XTENT job control statements) on SYSnnn and/or SYSppp logical units can be calculated using the following formulas.

When building an Operative Vocabulary File, the formula to determine the area to be reserved on SYSnnn for VOCUT is:

1) for IBM 2311

$$T_1=[0.04S]*+[0.04s]*+[0.0003s(L+81)]*$$

2) for IBM 2314

$$T_1=[0.025S]_*+[0.025s]_*+[0.0002s(L+101)]_*$$

where:

T_1
is the approximate number of tracks needed by SYSnnn.

S
is the number of tables to be included in the Operative Vocabulary File.

s
is the number of words selected from the Input Vocabulary File(s).

L
is the average length of the selected words.

[ ]*
means that the result must be rounded to the next higher integer.

The formula to determine the area to be reserved on SYSppp for VOCRES is:

1) for IBM 2311

$$T_2=[2.03t]*+[0.019w]*+[0.0003w(L+81)]*+SPT$$

2) for IBM 2314

$$T_2=[2.03t]_*+[0.010w]_*+[0.0002w(L+101)]_*$$

where:

T_2
is the approximative number of tracks needed by SYSppp.

t
is the number of tables to be included in the Operative Vocabulary File.

w
is the total number of words in the Operative Vocabulary File.

L
is the average length of the Operative Vocabulary File words.

SPT
is the total number of spare tracks.

When updating a table or the residuum in the Operative Vocabulary File, the formula is:

1) for IBM 2311

$$T_3=[0.019w]*+[0.0003w(L+81)]*$$

2) for IBM 2314

$$T_3=[0.010w]_*+[0.0002w(L+101)]_*$$

where:

T_3
is the approximate number of tracks needed by SYSnnn (VOCUT).

w
is the number of words in the updated table or residuum.

L
is the average length of words in the table or residuum.

Note: A different amount of disk storage must be reserved for SYSnnn and SYSpppp; this is done by the user in the XTENT job control statement.

```
┌──────────────────────────────────────────────────┐
│                     IJNVOC                       │
├──────────────────────────────────────────────────┤
│ PHASE VOC72UT,S,NOAUTO                           │
│ INCLUDE IJNVIO,(IJNVIO0,IJNVIO1,IJNVIO2,IJNVIO5) │
│ INCLUDE IJNVCT                                   │
│ PHASE VOC72CR,VOCIN2(VOC72UT),NOAUTO             │
│ INCLUDE IJNVIO,(IJNVIO6)                         │
│ INCLUDE IJNVIO,(IJNVIO4)                         │
│ PHASE VOC72PR,VOCOUT2(VOC72UT),NOAUTO            │
│ INCLUDE IJNVIO,(IJNVIO7)                         │
│ INCLUDE IJNVIO,(IJNVIO3)                         │
│ PHASE VOC72ER,BUFR(VOC72UT),NOAUTO               │
│ INCLUDE IJNVER                                   │
│ PHASE VOC72BL,IJNVCT2,(VOC72UT),NOAUTO           │
│ INCLUDE IJNVBL,(IJNVBL1)                         │
│ PHASE VOC72BM,APHASE(VOC72BL),NOAUTO             │
│ INCLUDE IJNVBL,(IJNVBL2)                         │
│ PHASE VOC72BN,BLLOAD1(VOC72BM),NOAUTO            │
│ INCLUDE IJNVBL,(IJNVBL3)                         │
│ PHASE VOC72LO,IJNVCT2,(VOC72UT),NOAUTO           │
│ INCLUDE IJNVLO                                   │
│ PHASE VOC72LI,IJNVCT2,(VOC72UT),NOAUTO           │
│ INCLUDE IJNVLI                                   │
│ PHASE VOC72UP,IJNVCT2,(VOC72UT),NOAUTO           │
│ INCLUDE IJNVUP,(IJNVUP1)                         │
│ PHASE VOC72UQ,BPHASE(VOC72UP),NOAUTO             │
│ INCLUDE IJNVUP,(IJNVUP2)                         │
│ PHASE VOC72UR,BPHASE(VOC72UP),NOAUTO             │
│ INCLUDE IJNVUP,(IJNVUP3)                         │
│ ENTRY IJNVCT2                                    │
│ END                                              │
└──────────────────────────────────────────────────┘
```

IJNVCT	Text for ROOT Phase (Part 1)
IJNVIO	Text for ROOT Phase (Part 2)
IJNVER	Text for Transient Error Routine
IJNVLI	Text for List IVF Phase
IJNVBL	Text for Build OVF Phases
IJNVLO	Text for List OVF Phase
IJNVUP	Text for Update OVF Phases

APPENDIX C. CONTROL STATEMENTS AND SAMPLE LISTINGS

This appendix specifies which control statements must be used to perform a VOC72UT function, and illustrates the different types of listing produced during a VOC72UT run. It is divided into three sections:

- Section 1 indicates the control statements used to list an Input Vocabulary File recorded on magnetic tape when VOC72UT is in the relocatable library, and shows the resulting listing.
- Section 2 indicates the control statements used to build an Operative Vocabulary File from the above Input Vocabulary File, and contains a listing of the entire Operative Vocabulary. The Operative Vocabulary File is made up of two vocabulary tables and a residuum.
- Section 3 indicates the control statements used to update the Operative Vocabulary tables, and shows a listing of their updated contents.

SECTION 1

The control statements used to list the Input Vocabulary File, and the resulting listing, are shown below.

```
// JOB SAMPLE1
// OPTION LINK
 INCLUDE IJNVOC
// EXEC LNKEDT
// OPTION LOG,NODUMP
// ASSGN SYS004,X'182'
// UPSI 00000001
// EXEC
// VOC LI
// VOC ND
/&
```

IDENTIFIER	WORD SPELLING	TIME(MS)	LENGTH(BYTES)	DCV RECORDS
M10458	ROOM	00507	0142	03
M10459	SALARY	00669	0200	04
M10460	SALESMAN	00764	0226	04
M10461	SCHOOL	00674	0191	04
M10462	STOCK	00661	0190	04
M10463	SWITCH	00651	0215	04
M10464	SYMBOL	00616	0153	03
M10465	TAG	00566	0177	03
M10466	TELEGRAPH	00785	0215	04
M10467	TELEPHONE	00665	0172	03
M10468	TERMINAL	00613	0189	04
M10469	TICKET	00505	0223	04
M10470	TITLE	00442	0160	03
M10471	TRACK	00521	0148	03
M10472	UNIT	00491	0155	03
M10473	VENDOR	00512	0137	03
M10474	WAREHOUSE	00742	0165	03
M10475	WEATHER	00518	0137	03
M10476	WIND	00512	0143	03
M10477	WOOD	00425	0130	03
M10478	WORD	00527	0152	03
M10479	A	00422	0096	02
M10480	ACRES	00605	0186	04
M10481	ADD	00490	0118	02
M10482	ADJUSTED	00650	0189	04
M10483	ADVANCE	00733	0183	04
M10484	ALLOTMENT	00654	0189	04
M10485	ALPHA	00562	0148	03
M10486	APRIL	00547	0161	03
M10487	AUGUST	00592	0148	03
M10488	BEHIND	00715	0196	04
M10489	BILLED	00479	0122	03
M10490	BLACK	00431	0124	03
M10491	BLUE	00341	0073	02
M10492	BRAVO	00647	0150	03
M10493	CALLED	00627	0170	03
M10494	CALLS	00660	0160	03
M10495	CAUTION	00511	0137	03
M10496	CERTIFYING	00830	0209	04
M10497	CHARLIE	00518	0161	03
M10498	CHECKS	00529	0149	03
M10499	CLOSE	00639	0147	03
M10500	CLAIMS	00650	0149	03
M10501	DASH	00650	0158	03
M10502	DEALER	00461	0118	02
M10503	DECEMBER	00652	0148	03
M10504	DELTA	00645	0210	04
M10505	DESK	00505	0138	03
M10506	DIRECT	00548	0142	03
M10507	DONE	00498	0130	03
M10508	DOUBLE	00490	0134	03
M10509	DOWN	00632	0154	03
M10510	DRY	00518	0148	03
M10511	ECHO	00511	0167	03
M10512	EIGHTEEN	00762	0167	03
M10513	EIGHTY	00381	0111	02
M10514	ELEVEN	00506	0157	03
M10515	END	00463	0129	03

SECTION 2

The control statements used to build an Operative Vocabulary File, and the resulting listing, are shown below.

```
Col 01                                                          Col 72
|                                                                    |
|                                                                    |

// JOB SAMPLE2

// OPTION LOG,NODUMP

// ASSGN SYS001,X'191'

// ASSGN SYS002,X'191'

// VOL SYS001,VOCRES

// DLAB 'RESIDENT VOCABULARY FILE                    1222222'          X

              0001,66180,66180,'16K DOS      ',DA

// XTENT 1,000,000021000,000029000,'222222',SYS001,0

// VOL SYS002,VOCUT

// DLAB 'UTILITY FILE                                1222222',         X

              0001,66180,66180,'16K DOS      ',DA

// XTENT 1,000,000030000,000039000,'222222',SYS002,0

// ASSGN SYS004,X'182'

// UPSI 00000001

// EXEC VOC72UT

// VOC BL,M1(909)

 SELECT ALPHABET(5),479,868,686,731,535,794,549,820,565,676,586,596,  X
                      615,786,688

 SELECT DIGIT(2),646,648,650,652,654,656,658,660,1

 SELECT RESIDUUM,1-20,M10030-M10050,60,65,70,75,83-90,M10097

// VOC LO

// VOC ND

/&
```

NUMBER	WORD SPELLING	TTR DASD LOC(HEX)	TIME(MS)	LENGTH(BYTES)
ALPHABET (005 SPARE TRACKS)				
0001	A	00D701	00422	0096
0002	C	00D702	00560	0157
0003	E	00D703	00472	0078
0004	G	00D704	00492	0124
0005	H	00D705	00476	0146
0006	K	00D706	00517	0143
0007	L	00D707	00458	0118
0008	M	00D708	00450	0137
0009	O	00D709	00446	0102
0010	Q	00D70A	00516	0138
0011	R	00D70B	00478	0125
0012	S	00D70C	00467	0121
0013	T	00D70D	00463	0108
0014	U	00D70E	00435	0109
0015	V	00D70F	00493	0101
DIGIT (002 SPARE TRACKS)				
0001	ONE	00DD01	00466	0139
0002	TWO	00DD02	00447	0137
0003	THREE	00DD03	00472	0145
0004	FOUR	00DD04	00554	0122
0005	FIVE	00DD05	00686	0154
0006	SIX	00DD06	00567	0148
0007	SEVEN	00DD07	00524	0129
0008	EIGHT	00DD08	00456	0157
0009	TEN	00DD09	00461	0148
RESIDUUM (000 SPARE TRACK)				
0001	ACCRUE	00E001	00676	0229
0002	ACCRUED	00E002	00772	0262
0003	ACTION	00E003	00536	0223
0004	ACTUAL	00E004	00600	0233
0005	AFFILIATION	00E005	00923	0259
0006	ALLOT	00E006	00581	0207
0007	ALLOWABLE	00E007	00779	0210
0008	ALLOWED	00E008	00642	0186
0009	ANALYSIS	00E009	00776	0233
0010	APPROPRIATE	00E00A	00746	0303
0011	APPROPRIATION	00E00B	00950	0391
0012	ASKED	00E101	00601	0190
0013	ASSISTANCE	00E102	00703	0259
0014	ASSUMED	00E103	00703	0211
0015	AUTHORIZED	00E104	00844	0297
0016	BETWEEN	00E105	00678	0211
0017	BILLING	00E106	00607	0171
0018	BILLS	00E107	00611	0182
0019	BUDGET	00E108	00503	0189
0020	COLD	00E109	00572	0163
0021	COLLECT	00E10A	00590	0196
0022	COLLECTED	00E10B	00606	0252

NUMBER	WORD SPELLING	TTR DASD LOC(HEX)	TIME(MS)	LENGTH(BYTES)
0023	COLUMN	00E10C	00543	0154
0024	COMMIT	00E10D	00431	0170
0025	COMMITTED	00E201	00541	0187
0026	COMMON	00E202	00464	0139
0027	COMPLETE	00E203	00631	0271
0028	COMPLETION	00E204	00661	0253
0029	CONDITION	00E205	00630	0200
0030	CONFIRM	00E206	00677	0195
0031	CONFIRMED	00E207	00755	0261
0032	CONSTANT	00E208	00631	0255
0033	CONSTRAINT	00E209	00707	0250
0034	CONTENTS	00E20A	00852	0293
0035	CONTRACTED	00E20B	00802	0333
0036	CONTROL	00E301	00708	0215
0037	CORRECT	00E302	00572	0204
0038	COUNT	00E303	00496	0198
0039	COVERAGE	00E304	00686	0238
0040	CRITICAL	00E305	00508	0209
0041	DEMAND	00E306	00605	0175
0042	DIFFERENCE	00E307	00762	0217
0043	DISCONTINUED	00E308	00955	0335
0044	DIVIDEND	00E309	00708	0195
0045	EFFORT	00E30A	00473	0204
0046	ELAPSED	00E30B	00723	0246
0047	ELECTRIC	00E30C	00693	0289
0048	ELEMENT	00E401	00557	0202
0049	EMPTY	00E402	00507	0202
0050	ENDORSED	00E403	00788	0286
0051	ENTERED	00E404	00493	0183
0052	ENTIRE	00E405	00715	0215
0053	EXPECTED	00E406	00762	0375

SECTION 3

The control statements used to update the vocabulary tables of section 2, and the resulting listing of their updated contents, are shown below.

```
Col 01                                                          Col 72
|                                                                    |

// JOB SAMPLE3

// OPTION LOG,NODUMP

// ASSGN SYS001,X'191'

// ASSGN SYS002,X'191'

// VOL SYS001,VOCRES

// DLAB 'RESIDENT VOCABULARY FILE                    1222222',         X
               0001,66185,66185,'16K DOS      ',DA

// XTENT 1,000,000021000,000029000,'222222',SYS001,0

// VOL SYS002,VOCUT

// DLAB 'UTILITY FILE                                1222222',         X
               0001,66180,66180,'15K DOS      ',DA

// XTENT 1,000,000030000,000039000,'222222',SYS002,0

// ASSGN SYS004,X'182'

// EXEC VOC72UT

// VOC UP

 MODIFY INSERT,ALPHABET,1,774

 MODIFY INSERT,ALPHABET,3,812

 MODIFY INSERT,ALPHABET,5,692

 MODIFY INSERT,ALPHABET,8,538

 MODIFY INSERT,ALPHABET,9,545

 MODIFY INSERT,ALPHABET,13,737

 MODIFY INSERT,ALPHABET,15,674

 MODIFY ADD,ALPHABET,631,636,638,693

// VOC LO,ALPHABET

// VOC UP

 MODIFY INSERT,DIGIT,0,664

 MODIFY REPLACE,DIGIT,10,662

// VOC LO,DIGIT

// VOC ND

/&
```

NUMBER	WORD SPELLING	TTR DASD LOC(HEX)	TIME(MS)	LENGTH(BYTES)
ALPHABET (004 SPARE TRACKS)				
0001	A	00D701	00422	0096
0002	B	00D702	00636	0134
0003	C	00D703	00560	0157
0004	D	00D704	00463	0123
0005	E	00D705	00472	0078
0006	F	00D706	00330	0087
0007	G	00D707	00492	0124
0008	H	00D708	00476	0146
0009	I	00D709	00454	0104
0010	J	00D70A	00533	0129
0011	K	00D70B	00517	0143
0012	L	00D70C	00458	0118
0013	M	00D70D	00450	0137
0014	N	00D70E	00444	0096
0015	O	00D70F	00446	0102
0016	P	00D710	00439	0109
0017	Q	00D711	00516	0138
0018	R	00D712	00478	0125
0019	S	00D713	00467	0121
0020	T	00D801	00463	0108
0021	U	00D802	00435	0109
0022	V	00D803	00493	0101
0023	W	00D804	00538	0190
0024	X	00D805	00463	0124
0025	Y	00D806	00505	0124
0026	Z	00D807	00492	0118

NUMBER	WORD SPELLING	TTR DASD LOC(HEX)	TIME(MS)	LENGTH(BYTES)
DIGIT (002 SPARE TRACKS)				
0001	ZERO	00DD01	00629	0179
0002	ONE	00DD02	00466	0139
0003	TWO	00DD03	00447	0137
0004	THREE	00DD04	00472	0145
0005	FOUR	00DD05	00554	0122
0006	FIVE	00DD06	00686	0154
0007	SIX	00DD07	00567	0148
0008	SEVEN	00DD08	00524	0129
0009	EIGHT	00DD09	00456	0157
0010	NINE	00DD0A	00568	0136

Whenever an error occurs during a VOC72UT run, messages are printed on the 1052 Printer-Keyboard. The cause of this error and the action to be taken by the operator are explained in the paragraphs immediately following the text of the message.

These messages have the following format:

8Vnnc message

where:

8V
identifies the message as a VOC72UT message.

nn
is the identification number of the message.

c
specifies the action code and takes one of the following symbolic values:

A
indicates that the operator must perform a specific manual action before the program resumes execution.

D
indicates that the operator must make a decision; he must choose between alternate courses of action before the program resumes execution.

I
indicates that operator action is not necessary. The message is for information only and processing continues without interruption.

message
is the text of the message.

When the message results from an error in input data, the corresponding data is printed before the message.

8V00A INVALID STATEMENT

Explanation: A statement read by VOC72UT from the card reader assigned to SYSIPT is not recognized.

System Response: The System/360 enters the wait state, awaiting operator action.

Required Action: The operator can:

- Supply the correct control statement and type the character Y to continue processing
- Type any character except Y to terminate the job

8V00I INVALID STATEMENT

Explanation: A statement read by VOC72UT from the tape unit assigned to SYSIPT is not recognized.

System Response: The invalid statement is printed on the 1052 Printer-Keyboard. The job is terminated and the system goes on to the next job.

Required Action: None.

8V01I INVALID PARAMETER xxxxxx

Explanation: An expected numerical field, either in a VOC72UT statement or in an Input Vocabulary File record, is not numeric.

System Response: The record and the invalid field xxxxxx are printed on the 1052 Printer-Keyboard. The job is terminated, and the system goes on to the next job.

Required Action: None.

8V02A INVALID TABLE NAME

Explanation: The name of a table specified in a VOC72UT statement read from the card reader assigned to SYSIPT does not conform to the specified format for this parameter.

System Response: The statement is printed on the 1052 Printer-Keyboard, and the System/360 enters the wait state, awaiting operator action.

Required Action: The operator can:

- Supply the correct control statement on SYSIPT and type the character Y to continue processing
- Type any character except Y to terminate the job

8V02I INVALID TABLE NAME

Explanation: The name of a table specified in a VOC72UT statement read from the tape unit assigned to SYSIPT does not conform to the specified format for this parameter.

System Response: The statement is printed on the 1052 Printer-Keyboard. The job is terminated, and the system goes on to the next job.

Required Action: None.

8V03A INVALID SPARE TRACK PARAMETER

Explanation: The number of spare tracks allocated to a table in a SELECT statement read from the card reader assigned to SYSIPT exceeds 255.

System Response: The SELECT statement is printed on the 1052 Printer-Keyboard, and the System/360 enters the wait state, awaiting operator action.

Required Action: The operator can:

- Supply the correct control statement via SYSIPT and type the character Y to continue processing
- Type any character Y to terminate the job

8V03I INVALID SPARE TRACK PARAMETER

Explanation: The number of spare tracks allocated to a table in a SELECT statement read from the tape unit assigned to SYSIPT exceeds 255.

System Response: The SELECT statement is printed on the 1052 Printer-Keyboard, the job is terminated, and the system goes on to the next job.

Required Action: None.

8V04I INVALID SEPARATOR

Explanation: A separator in a VOC72UT statement is incorrect.

System Response: The corresponding statement is printed on the 1052 Printer-Keyboard, the job is terminated, and the system goes on to the next job.

Required Action: None.

8V05I INVALID INPUT VOCABULARY PARAMETER

Explanation: An input vocabulary parameter indicated in a VOC BL statement does not conform to the format specified for this parameter.

System Response: The corresponding statement is printed on the 1052 Printer-Keyboard, the job is terminated, and the system goes on to the next job.

Required Action: None.

8V06I INVALID WORD IDENTIFIER xxxxxx

Explanation: An invalid word identifier has been encountered.

System Response: The job is terminated, and the system goes on to the next job.

Required Action: None.

8V07I INVALID WORD IDENTIFIER SEQUENCE xxxxxx

Explanation: An invalid word identifier sequence has been encountered.

System Response: The first element of the sequence xxxxxx and the corresponding statement are printed on the 1052 Printer-Keyboard. The job is terminated and the system goes on to the next job.

Required Action: None.

8V08A INVALID CONTINUATION CARD

Explanation: The first 15 columns of a continuation card read from the card reader assigned to SYSIPT are not blank.

System Response: The contents of the card are printed on the 1052 Printer-Keyboard, and the System/360 enters the wait state, awaiting operator action.

Required Action: The operator can:

- Provide a correct continuation card and type Y to continue processing
- Type any character except Y to terminate the job

8V08I INVALID CONTINUATION CARD

Explanation: The first 15 columns of a continuation card read from the tape unit assigned to SYSIPT are not blank.

System Response: The contents of the card are printed on the 1052 Printer-Keyboard, the job is terminated, and the system goes on to the next job.

Required Action: None.

8V09A TABLE NOT FOUND

Explanation: A table specified in a VOC72UT statement read from the card reader assigned to SYSIPT does not exist in the Operative Vocabulary File.

System Response: The statement is printed on the 1052 Printer-Keyboard, and the System/360 enters the wait state, awaiting operator action.

Required Action: The operator can:

- Provide the correct statement and type Y to continue processing
- Type any character except Y to terminate the job

8V09I TABLE NOT FOUND

Explanation: A table specified in a VOC72UT statement read from the tape unit assigned to SYSIPT does not exist in the Operative Vocabulary File.

System Response: The statement is printed on the 1052 Printer-Keyboard, the job is terminated, and the system goes on to the next job.

Required Action: None.

8V10A INVALID UPDATE OPERATION

Explanation: An attempt to insert a word in the residuum has been made. The selected statement has been read from the card reader assigned to SYSIPT.

System Response: The corresponding statement is printed on the 1052 Printer-Keyboard, and the System/360 enters the wait state, awaiting operator action.

Required Action: The operator can:

- Provide a valid statement and type the character Y to continue processing
- Type any character except Y to terminate the job

8V10I INVALID UPDATE OPERATION

Explanation: An attempt to insert a word in the residuum has been made. The corresponding statement has been read from the tape unit assigned to SYSIPT.

System Response: The statement is printed on the 1052 Printer-Keyboard, the job is terminated, and the system goes on to the next job.

Required Action: None.

8V11A INVALID WORD LOCATION

Explanation: The word location specified in a MODIFY statement read from the card reader assigned to SYSIPT is incorrect.

System Response: The corresponding statement is printed on the 1052 Printer-Keyboard, and the System/360 enters the wait state, awaiting operator action.

Required Action: The operator can:

- Provide a correct statement and type Y to continue processing
- Type any character except Y to terminate the job

8V11I INVALID WORD LOCATION

Explanation: The word location specified in a MODIFY statement read from the tape unit assigned to SYSIPT is incorrect.

System Response: The corresponding statement is printed on the 1052 Printer-Keyboard, the job is terminated, and the system goes on to the next job.

Required Action: None.

8V12A WORD xxxxxx NOT FOUND

Explanation: A word specified in a MODIFY statement read from the card reader assigned to SYSIPT has not been found in the Input Vocabulary File assigned to SYS004.

System Response: The corresponding statement is printed on the 1052 Printer-Keyboard, and the System/360 enters the wait state, awaiting operator action.

Required Action: The operator can:

- Mount the correct Input Vocabulary File and type Y to continue processing
- Type any character except Y to terminate the job

8V13A INPUT VOCABULARY MISSING ON SYSxxx

Explanation: The input vocabulary expected to be on the card reader assigned to SYSIPT (xxx=IPT), or on a tape unit assigned to SYS004 (xxx=004), is not present.

System Response: The System/360 enters the wait state, awaiting operator action.

Required Action: The operator can:

- Provide the missing vocabulary deck or tape, and type the character Y to continue processing
- Type any character except Y to terminate the job

8V13I INPUT VOCABULARY MISSING ON SYSIPT

Explanation: The input vocabulary, expected to be on the tape unit assigned to SYSIPT, is not present.

System Response: The job is terminated, and the system goes on to the next job.

Required Action: None.

8V14A INVALID VOCABULARY SEQUENCE

Explanation: In the vocabulary deck on the card reader assigned to SYSIPT, an incorrect sequence of records has been encountered.

System Response: The invalid record is printed on the 1052 Printer-Keyboard, and the System/360 enters the wait state, awaiting operator action.

Required Action: The operator can:

- Put the vocabulary records in the proper sequence and type Y to continue processing
- Type any character except Y to terminate the job

8V14I INVALID VOCABULARY SEQUENCE

Explanation: An incorrect sequence of records has been encountered in the vocabulary on the tape unit assigned to SYSIPT.

System Response: The invalid record is printed on the 1052 Printer-Keyboard, the job is terminated, and the system goes on to the next job.

Required Action: None.

8V15D EXCESSIVE WORD LENGTH xxxxxx

Explanation: A word representation exceeds either the available buffer size or the track capacity of the IBM Direct Access Storage Device used.

System Response: The word identifier is printed on the 1052 Printer-Keyboard, and the System/360 enters the wait state, awaiting operator action.

Required Action: The operator can:

- Type the character Y to skip this word and continue processing
- Type any character except Y to terminate the job

8V16D WORD xxxxxx NOT FOUND

Explanation: A word specified by the word identifier xxxxxx is not in the Input Vocabulary File(s).

System Response: The System/360 enters the wait state, awaiting operator action.

Required Action: The operator can:

- Type the character Y to continue processing
- Type any character except Y to terminate the job

8V17I OVERFLOW ON VOCRES

Explanation: The space on disk allocated to the Operative Vocabulary File is insufficient.

System Response: The job is terminated, and the system goes on to the next job.

Required Action: None.

8V18I OVERFLOW ON VOCUT

Explanation: The space on disk allocated to the utility work file is insufficient.

System Response: The job is terminated, and the system goes on to the next job.

Required Action: None.

8V19I TAPE READ ERROR

Explanation: An unrecoverable read error has been detected while reading a magnetic tape file.

System Response: The job is terminated, and the system goes on to the next job.

Required Action: None.

8V20I READ ERROR ON VOCRES

Explanation: An unrecoverable read error has been detected while reading the Operative Vocabulary File.

System Response: The job is terminated, and the system goes on to the next job.

Required Action: None.

8V21I READ ERROR ON VOCUT

Explanation: An unrecoverable read error has been detected while reading the utility work file.

System Response: The job is terminated, and the system goes on to the next job.

Required Action: None.

8V22I INVALID VOCRES ASSIGNMENT

Explanation: The file described as VOCRES is not an Operative Vocabulary File.

System Response: The job is terminated, and the system goes on to the next job.

Required Action: None.

8V23I INVALID SYSLST ASSIGNMENT

Explanation: The program is not designed to handle the device assigned to SYSLST.

System Response: The job is terminated, and the system goes on to the next job.

Required Action: None.

8V24I INVALID SYSIPT ASSIGNMENT

Explanation: The program is not designed to handle the device assigned to SYSIPT.

System Response: The job is terminated, and the system goes on to the next job.

Required Action: None.

8V25I INVALID OR MISSING UPSI STATEMENT

Explanation: No UPSI statement has been provided to specify the type and the number of Input Vocabulary Files.

System Response: The job is terminated, and the system goes on to the next job.

Required Action: None.

8V26I UPDATE OPERATION REJECTED

Explanation: A vocabulary table or the residuum cannot be modified because there is no space available on disk.

System Response: The job is terminated, and the system goes on to the next job.

Required Action: None.

8V27I TOO MANY XTENTS FOR VOCRES

Explanation: More than one XTENT job control statement has been provided for VOCRES.

System Response: The job is terminated, and the system goes on to the next job.

Required Action: None.

8V28I TOO MANY XTENTS FOR VOCUT

Explanation: More than one XTENT job control statement has been provided for VOCUT.

System Response: The job is terminated, and the system goes on to the next job.

Required Action: None.

8V29I MAXIMUM WORD LENGTH xxxx

Explanation: The message indicates the maximum length (xxxx), in bytes, of digital representations which can be processed by the program.

System Response: Processing continues.

Required Action: None.

8V30I xxxx WORDS NOT FOUND

Explanation: The message indicates the number of words selected by the user but not contained in the Input Vocabulary File(s).

System Response: Processing continues.

Required Action: None.

8V31I TABLE xxxxxxxx NOT CREATED

Explanation: The words to be included in the table xxxxxxxx do not exist in the Input Vocabulary File(s).

System Response: Processing continues.

Where more than one reference is given, the first page number indicates the major reference.

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GC27-6924-2

IBM System/360 Disk Operating System, Vocabulary File Utility Program for the IBM 7772 Audio Response Unit; Program Number 360N-UT-472

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