



## Systems Reference Library

### **IBM 1410/7010 Operating System (1410-PR-155) Generalized Tape Sorting Program—1410-SM-971**

The Generalized Tape Sorting Program consists of a set of relocatable routines and a separate routine called the Sort Definition program. This publication provides the 1410/7010 Operating System user with the detailed information necessary for implementation of the sorting program.

In addition to providing general information on the sorting program, and data on its features and specifications, this manual describes the nature of the Sort Definition program, the control cards used to form a sort or merge program, how the program is modified via control cards at object time to fit the particular application, and how the user includes his own programming to perform modifications.

MAJOR REVISION (JULY 1965)

This publication is a major revision of *IBM 1410/7010 Operating System; Generalized Tape Sorting Program*, Forms C28-0354-0 and -1. The original publications and associated Technical Newsletters, N28-1130, N28-1155, and N28-1192, are made obsolete by this revision. Text changes are indicated by a vertical line at the left of the affected text.

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### **Purpose of the Publication**

This publication provides the IBM 1410/7010 Operating System user with detailed information necessary for implementation of the Generalized Tape Sorting Program. The "Introduction" and "Features and Specifications" sections of this reference manual aim to familiarize the user with the program and its capabilities; the "Program Definition" and "Program Operation" sections provide instructions on how to define and produce absolute programs, and how to execute them; and the "Program Description" and "Program Modification" sections describe the structure of the program and how the user may incorporate his own additional programming, if desired, into the programs produced.

### **Purpose of the Program**

The Generalized Tape Sorting Program, a component of the IBM 1410/7010 Operating System, functions under the control of the System Monitor and utilizes the Resident iocs. The purpose of the program is to supply the subroutines required to produce a number of absolute programs that will satisfy an installation's sort and merge requirements.

### **Prerequisite Information and Related Literature**

The reader of this publication should have experience in programming for either the IBM 1410 or 7010 Data Processing System, and should possess an understanding of basic sorting techniques. He should also be familiar with the information contained in the following publications:

*IBM 1410/7010 Operating System; Basic Concepts*,  
Form C28-0318

*IBM 1410/7010 Operating System; System Monitor*,  
Form C28-0319

To more fully understand the input/output aspects of the program, the user should be acquainted with the functions of the iocs; these are described in the publication, *IBM 1410/7010 Operating System; Basic Input/Output Control System*, Form C28-0322. Additional material on the Sort Definition program, a separate routine within the Generalized Tape Sorting Program, can be found in the publication, *IBM 1410/7010 Operating System; System Generation*, Form C28-0352.

### **General Organization of the Program**

The Generalized Tape Sorting Program, as supplied by IBM, consists of a set of relocatable subroutines, hereafter called "modules," and a separate routine called the Sort Definition program. A sort or merge program (see "Glossary" for definitions of sort, merge, and sort/merge) for a specific application is produced in two general steps:

1. Acting upon information provided through parameter designations in user-supplied control cards, the Sort Definition program determines which modules are required for the type of sort or merge program desired. These modules will be combined into an absolute program through use of the Linkage Loader. There are eight different types of sort programs and eight types of merge programs that can be created. A user can create as many sort/merge programs as necessary for his applications. (See the "Program Definition" section, and "Sort Definition Program," under "Program Description.")

2. At object time, the sort or merge program created (or, if several are created, the one selected), acting upon control card information supplied by the user, adjusts itself to meet the requirements of the specific application. (See the "Program Operation" section.)

Figure 1 illustrates the general method by which a sort or merge program is created.

A sort program is divided into four phases: the General Assignment Phase, Phase 1, Phase 2, and Phase 3. The General Assignment Phase does the initial housekeeping for the sort program; Phase 1 performs the internal sorting; Phase 2 merges the output sequences from Phase 1 until the number of sequences is equal to or less than the merge order (when the merge is unbalanced, the number of sequences must be equal to or less than the merge order of the output file of the completed pass); and Phase 3 performs the final merge pass for the sort. A merge program consists of the General Assignment Phase and Phase 3. (The phases of the sort/merge programs are described in the "Program Description" section.)

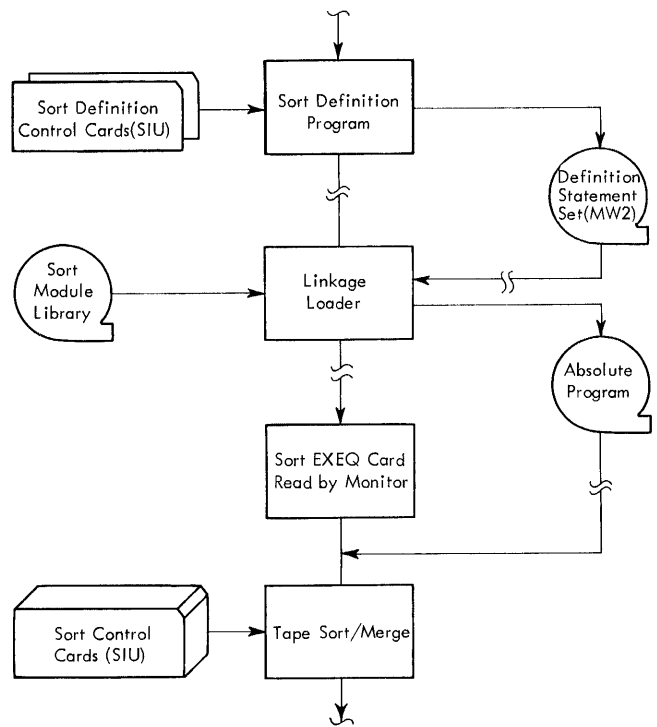


Figure 1. Creating a Sort or Merge Program

## Features of the Generalized Tape Sorting Program

To facilitate program scheduling within the Operating System, the Generalized Tape Sorting Program permits input from tape unit(s) on either channel or from the Standard Input Unit (SIU). The program will use any merge tape units specified by the user. Output of the sort program will be on one of the two merge files (see "Glossary") specified. The output file address will be placed in the IPI field (see the *System Monitor* publication) in the Resident Monitor for use as input by a subsequent program.

Data records may be unblocked or blocked fixed-length records, or unblocked or blocked variable-length records.

The blocking used during intermediate passes by the sort program is independent of the blocking of the input file, the blocking of the output file, and the number of records internally sorted at one time.

The control data word upon which the sort or merge program is based can consist of as many as ten control data fields. Maximum length of each such field is 999 characters. The control data fields can be contiguous or scattered throughout the record, but must not overlap.

In each phase a limited amount of core storage can be occupied by user-written subroutines.

Linkage points are provided at logical junctures in the program to facilitate the performance of non-sorting functions, such as the alteration, addition, deletion, summarization, expansion, or contraction of data records, and the activation of iocs label and error exits for the user's special processing routines.

The merge order in the sort program can be from two to five in a balanced merge, or from one to five in an unbalanced merge; the desired merge order is communicated to the sort program via control cards. The merge order for the merge program can be from one to eight.

The program will sort in either ascending or descending standard BCD Interchange Code collating sequence, as specified in the control information supplied by the user.

The option of having checkpoints taken can be specified through the control information. These checkpoints are taken by means of the Resident iocs checkpoint routine. Restart procedures are provided by the System Monitor.

## Equipment Requirements

### Basic Machine Requirements

The Generalized Tape Sorting Program requires either an IBM 1410 with 40,000, 60,000 or 80,000 positions of core storage and the Processing Overlap and Priority special features; or an IBM 7010 with 40,000, 60,000, 80,000 or 100,000 positions of core storage. One data transmission channel will satisfy the minimum requirements of the program. However, the program attains optimum efficiency when two data transmission channels are used; it will automatically take advantage of the overlap of reading and writing with processing made possible by having two channels.

### Tape Unit Requirements

The required and optional tape units used by the program are shown in Figure 2. IBM 7330, 729 II, 729 IV, 729 V, and/or 729 VI Magnetic Tape Units can be used.

The four units (three if an unbalanced merge is used) required for the merging tapes, plus the unit required for the System Operating File, can be the five tape units (four if an unbalanced merge is used) specified as the minimum required for the

Function	Number of Units Required
Program Tape Unit (MJB)	One (Not required if the program is stored on the System Operating file, or on disk storage in a disk-oriented system.)
Merging Tape Units (for sort program only)	m tape units for each of two merge files, where m is the merge order employed in Phase 2 (a minimum of four tape units). If an unbalanced merge is used, m tape units for one merge file and m' tape units for the other merge file (a minimum of three tape units). The program will operate if all the tape units are on one channel. All the units for one merge file need not be on the same channel.
Sort Program Input Tape Unit(s)	One, for one reel of input; one or more, for two or more reels of input, on either channel. Merging tape units may be used. No input tape units are required if the input is from the SIU.
Merge Program Input Tape Unit(s)	One for each merge program input file (multiple units may be used for each file).
Sort Program Output Tape Unit(s)	None (merging tape units will be used for output from the sort program).
Merge Program Output Tape Unit(s)	One (multiple units may be used).

Figure 2. Tape Unit Requirements

Operating System. Any other tape units required during the operation of the program must be in addition to these. In a disk-oriented system, the four tape units (three if an unbalanced merge is used) required for the merging tapes must be in addition to the basic system requirements. A description of the Operating System machine requirements can be found in the publication *System Generation*.

### Input Specifications

Input data may be unblocked or blocked fixed-length records, or unblocked or blocked variable-length records. The input file may be on any specified tape units or the sru.

### Input Data-Record Formats

A detailed description of the required formats for input data records appears in the publication *Basic Input/Output Control System*. For the Generalized Tape Sorting Program, unblocked variable-length data records, with or without a Block Character-Count field, may also have Record Character-Counts specified. Form 3 fixed-length records must be handled by defining them to the sort or merge program as Form 1 records (the record length specified will include the four-position Block Character-Count field).

The program will accept data records containing any valid 1410/7010 characters, with the following restrictions:

1. A record mark can appear only as the last character of a record.
2. Group marks with word marks must never appear in a record, and group marks or word separator characters must not appear in the high-order position of any control data field.

The minimum permissible tape record length is 13 characters. The maximum permissible tape record length is 9,989 characters. If the sort program is run under control of the Tele-processing Supervisor, it is recommended that the maximum tape-record length be less than 3,000 characters. The user may specify on the SORTTYPE control card (see the "Program Operation" section) the maximum sort blocking or sort block length of tape records to be used during the Phase 2 merge passes of the sort program. The minimum permissible data-record length for variable-length records is 13 characters. The maximum permissible data-record length depends on available core storage in each of the three phases. The estimates of maximum data-record lengths shown in Figure 3 are based on the following assumptions:

1. No space has been reserved in any phase for added programming.

Merge Order	Maximum Data-Record Length (In Characters)			
	Per Core-Storage Size			
	40,000 Positions of Core Storage	60,000 Positions of Core Storage	80,000 Positions of Core Storage	100,000 Positions of Core Storage
2	4,800	8,800	9,989	9,989
3	4,400	8,400	9,989	9,989
4	3,600	7,000	9,989	9,989
5	3,100	6,000	8,800	9,989
6*	2,800	5,300	7,800	9,989
7*	2,500	4,700	7,000	9,200
8*	2,300	4,300	6,300	8,300

\* Merge program only

Figure 3. Maximum Sort Data-Record Length

2. Only single input areas are being used by the program.
3. The size of the Resident Monitor is 11,500 positions.
4. Single control data fields are specified.

### Parity and Mode

Input data records can be read in even or odd parity, and can be read in Move or Load mode. Within the sort program, records are processed in the Load mode.

If input data records are read in the Load mode, there must be a word mark in the high-order position of each control data field specified; no other positions in a control data field can have word marks. The absence of a word mark in the high-order position of a control data field, or its presence in any other position of the field, can result in undetected sequencing errors.

If input data records are variable length and are read in the Load mode, there must be a word mark in the high-order position of the Block Character-Count field and the Record Character-Count field, if these fields are part of the record.

### Sort Capacity

The maximum capacity of the sort program is one full reel of records at sort blocking less than the merge order ( $m-1$ , where  $m$  represents the merge order). In an unbalanced merge,  $m$  represents the smaller of the two merge orders. While it may be possible to sort up to  $m$  full reels, successful completion of such a program cannot be assured. In an unbalanced merge, when the smaller of the merge orders is one, the maximum capacity is one full reel at sort blocking.

### Output Specifications

Output records must conform to the same form, content and length specifications as input records. The sort program output file will be on one or more of the merge work tapes. For a merge program, the user specifies the symbolic unit on which the output file is to be written.

## Output Data-Record Formats

The output blocking factor is independent of the input blocking factor and the sort blocking factor. For fixed-length records, any output blocking factor that can be accommodated by available core storage may be specified. For blocked variable-length records, any tape record length not less than the sum of the maximum data-record length (including the Record Character-Count field and record mark) plus four (the Block Character-Count field), and capable of being accommodated by available core storage, may be specified.

Blocked records may be specified as output from a sorting application in which the input consists of unblocked fixed-length data records not ending with a record mark. In this case, the sort program will automatically increase the output data-record length by one to accommodate the necessary record mark.

Unblocked fixed-length data records without a terminal record mark may be specified as output from a sorting application in which the input consists of blocked records or unblocked records with a terminal record mark. In this case, the sort program will automatically decrease the output data-record length by one, dropping the final record mark.

Unblocked variable-length records, either with or without a terminal record mark, may be specified as output from an application in which the input consists of blocked variable-length records. Conversely, blocked variable-length records may be specified as output from an application in which input consists of unblocked variable-length records. In either case, the program will increment or decrement the Record Character-Count field as necessary. In the case of a sort, if unblocked variable-length input and blocked variable-length output have been specified, and a Record Character-Count field has not been specified, the sort program will add a four-character Record Character-Count field as the first four characters of each data record. The allowable output formats for each of the input formats are summarized in Figure 4.

### Parity and Mode

Output data records can be written in even or odd parity; they can be written in Move or Load mode. If the output data records are written in Load mode, there will be a word mark in the high-order position of each control data field specified.

If the output data records are variable length and written in Load mode, and the Block Character-Count and Record Character-Count fields are part of the output tape record, there will be a word mark in the high-order positions of these fields. If input was in Load mode, word marks in the input data will be carried through to the output data.

		Output Record Forms					
		Form 1		Form 2	Form 3		Form 4
		Fixed	Var		Fixed	Var	
Input Record Forms	Form 1	Fixed	Yes		Yes		
		Var		Yes			Yes <sup>3</sup>
	Form 2	Fixed	Yes		Yes		
		Var					
	Form 3	Fixed	Yes <sup>2</sup>		Yes <sup>2</sup>	Yes <sup>2</sup>	
		Var					Yes
	Form 4	Fixed					Yes <sup>3</sup>
		Var		Yes		Yes <sup>1</sup>	Yes

NOTE 1: Only if the Record Character-Count field is such that it becomes the Block Character-Count field of the output records.

NOTE 2: Form 3 fixed-length records should be defined to the program as Form 1 records that include the four-position Block Character-Count field as part of the record.

NOTE 3: For a merge, a Record Character-Count must be specified.

Figure 4. Acceptable Input/Output Record Formats

## Output Considerations

Conversion of data records from fixed-length to variable-length format, or from variable-length to fixed-length format, may be accomplished through the use of modification exits in either Phase 1 or Phase 3 (see "Program Modification"). However, the specific sort program incorporating either type of conversion must be one defined at Sort Definition as a variable-length sort.

In a sorting application in which some of the records have equal control data fields, the input order of the equal records may not necessarily be maintained.

## Control Data

The control data word upon which the sort or merge is based may be as long as 9,989 characters and may consist of as many as ten control data fields. Maximum length of any single control data field is 999 characters. The control data fields may be contiguous or they may be scattered throughout the record; however, they must not overlap. All control data fields for variable-length records must lie within the minimum data-record length.

## Padding

When fixed-length records are blocked and the number of data records in a file is not evenly divisible by the blocking factor, padding records are necessary.

These padding records must meet the normal requirements for blocked fixed-length data records: they must all be the same length and they must end in a record mark. In addition, if the input or output files are in Load mode, the padding records must have word marks in the high-order position of each control data field. Since padding is never used with variable-length records, the program automatically eliminates all padding checks whenever the output is to be in variable-length format.

With the exception of the terminal record marks, padding records consist entirely of blanks or entirely of nines. When checking for padding, the program will not treat a record as padding if it contains any characters other than blanks or any characters other than nines, even though its control data fields consist entirely of blanks or entirely of nines.

For an ascending sort or merge program, a low padding record is one consisting entirely of blank characters (except for the terminal record mark), and a high padding record is one consisting entirely of nines (except the terminal record mark). For a descending sort or merge program, nines records are low padding and blank records are high padding.

The program will handle padding records according to the padding option specified in the OUTPUTFILE (see "Program Operation") sort/merge control card, as follows:

PADDING OPTION	DESCRIPTION
✓ 1	The program will not check for padding records. High padding records will be added if required.
2	All low padding records and all full blocks of high padding records will be dropped. Added padding, if required, will be high padding.
3	Full blocks of high padding and low padding will be dropped. Added padding, if required, will be low padding. This option is invalid for a merge program in which the total file size has not been specified. If the file size is changed by Phase 3 modifications, high padding may be added.
4	Full blocks of low padding will be dropped. Added padding, if required, will be low padding. This option is invalid for a merge program in which the total file size has not been specified. If the file size is changed by Phase 3 modifications, high padding may be added.
5	Full blocks of low padding and high padding will be dropped. Added padding, if required, will be high padding.
6	Full blocks of high padding will be dropped. Added padding, if required, will be high padding.

A block containing low padding, if present, will always appear as the first block in the output file, with

the low padding records appearing as the first records of the block. Similarly, a block containing high padding, if present, will always appear as the last block of the output file, with the high padding records appearing as the last records of the block.

Phase 3 will add padding records if the total number of output data records is not evenly divisible by the output blocking factor. When Phase 3 is required to check for high padding records, a calculation is made of the number of data records that can be processed before starting the check. This calculation is based on the assumption that no more than one block in each input reel contains high padding records. For a merge, the assumption is that no more than one block in each input file contains high padding records.

### Tape-Label Options

The program provides for processing 1410 80-character tape labels or IBM Standard 120-Character tape labels, by the IOCS tape label routines that are contained in the Resident IOCS. The sort or merge program itself provides none of the tape-label routines. Nonstandard labels may be processed through the use of modification exits provided in the File Table Extensions (see "Program Modification"). Format specifications for standard labels and the recommended tape labeling practices are described in the publication, *Basic Input/Output Control System*. The programs created from the Generalized Tape Sorting Program will also handle tapes that contain no labels.

The various tape-label options apply to all tapes used by each sort or merge program created. For example, if 1410 80-character labels are specified, all input tapes, merge tapes, and output tapes must have 80-character labels. If the tapes contain some 80-character and some 120-character labels, or some tapes do not have labels, then the labels must be treated as nonstandard and handled through user modifications to the sort program. Modification exits may also be used for additional label routines that the user may wish to include. The options for handling labels on tapes used by the sort or merge are shown in Figure 5,

Option	Code
IBM 1410 80-Character Labels	1
IBM Standard 120-Character Labels	2
Nonstandard Labels	3

Figure 5. Tape-Label Options

together with the codes used to specify the desired options in the `TYPELABEL` parameter of the `LABELDES` control card (see "Program Operation").

The fields to be used in processing input/output tape labels are entered into the File Table Extensions by use of the `LABELDES` control card. Parameters are also included in the `LABELDES` control card to inform the IOCS which label fields to check if IBM 1410 80-character labels or IBM Standard 120-Character labels are being used. If nonstandard labels are used, the `LABELDES` control card may be used to fill in the label fields in the File Table Extensions, but label checking must be done through user modifications to the sort or merge program.

### **Input/Output Error Correction Options**

The sort/merge program(s) specifies in the `IORW` Channel Status Characters that all detectable input and output error conditions should be tested for. Unreadable input records in the sort program in any phase seldom occur because of the automatic Read-Back feature of the 729 and 7330 tape units. Whenever an input tape record is unreadable, however, the Resident IOCS provides routines that: (1) accept the record as is, or (2) bypass the record in error.

The sort program utilizes the standard error correction procedures included in the Resident IOCS. If fur-

ther error correction routines are desired, they may be inserted into the sort program through the user's modification exits (see "Program Modification"). The Resident IOCS will exit to the proper error correction routines when an uncorrectable input/output error occurs.

### **Checkpoint and Restart**

The routine for writing checkpoint records is provided by the Resident IOCS, and is described in the publication *Basic Input/Output Control System*. The sort/merge program(s) created will write checkpoint records if the user so specifies. Checkpoints will be taken during the execution of the program at the following points:

1. At the start of Phase 1, prior to the opening of the input file.
2. At the start of each Phase 2 pass, prior to the opening of the merge file providing input to the pass.
3. At the start of Phase 3 or the merge program prior to the opening of the merge file or input files.

The program can be restarted from the last checkpoint through the use of the System Monitor restart routine. The details for restarting from a checkpoint can be found in the publication, *IBM 1410/7010 Operating System; Operator's Guide*, Form C28-0351. When the sort program is operating under control of the Tele-processing Supervisor, the checkpoint facility cannot be used.

## Program Definition

The function of the Sort Definition program is to select those relocatable modules required to form the type of sort or merge program desired by the user. The Sort Definition program produces a set of card-image records that is used to specify to the Linkage Loader the modules required. These records are written on symbolic unit MW2, which must be assigned as a tape unit by the user. By means of the INPUT control card, the user directs the Linkage Loader to take its input from this unit. User modifications may be inserted into various locations in the produced sort or merge programs by the user's placing his own relocatable routines (or the appropriate CALL statements if the desired routines have been placed on the Go file or in the sort module library) on the *slu* following the Sort Definition control cards. (These procedures are described in "Program Modification.")

### Control Information

The Sort Definition program, acting upon specifications provided by the user, determines which modules will be required for the program desired. The user communicates these specifications to the Sort Definition program by means of two control cards: the Sort Definition card and the Unit Definition card. Functions of these cards and the parameters that may be specified are explained in the following subsections.

The Sort Definition program processes a Sort Definition card and Unit Definition card as a pair. A number of these pairs may be used during one execution of the Sort Definition program to produce as many sort/merge programs as there are pairs of cards; however, if a pair does not contain one card of each type, the program intended will not be defined. Either the Sort Definition or the Unit Definition card may appear first in the *slu*. When one card of each type is found, the program proceeds with the definition of the desired sort or merge program.

#### Sort Definition Card

The purpose of the Sort Definition card is to enable the user to specify the parameters for the desired sort or merge program, and to establish a name for the specific program to be produced. The format of the Sort Definition card and the parameters that may be specified are described below.

*Card Columns 1-5:* These columns are unused.

*Card Columns 6-15:* Program Identification – This field contains the name by which the sort or merge program produced will be identified. The name can be one to ten alphameric characters in length, left-justified in the field. The first character must be alphabetic, and no special characters are allowed.

This name will be used in the System Monitor EXEQ card that effects the loading and execution of the program. If the produced sort or merge program is to be included as a phase of a larger program, this field must be left blank.

*Card Columns 16-20:* Card Identification – The Sort Definition card is identified by the mnemonic DSORT.

*Card Columns 21-72:* Parameter List – The information in this field will define the sort or merge program to be produced. The field may be left blank or contain from one to five parameters. If the user desires to increase the mnemonic value of any parameter, he can expand the parameter to a maximum of ten characters; each parameter can also be reduced to its first three characters.

The parameters must be separated by commas and may appear in any order. No intervening blanks are permitted in the parameter-list field. Parameter analysis terminates on recognition of the first blank character; further information in the card will be ignored.

With the exception of PCRI (see below), each of the possible parameters can be one of two choices; absence on the control card of both choices results in the selection of the first of the alternatives. Therefore, if the first parameter alternative is desired, the user need make no entry for that pair on the control card.

Parameters that may be specified are as follows:

- SORT – The modules the Sort Definition program selects will be those for a sorting program. If neither SORT nor MERGE is specified, SORT will be assumed.
- MERGE – The program desired is a merge.
- FIXED – The program desired will process fixed-length data records. If neither FIXED nor VARIA is specified, FIXED will be assumed.
- VARIA – The program desired will process variable-length data records.
- MULTI – The program desired will process records that contain a control data word consisting of one or more control data fields. If neither MULTI nor ONE is specified, MULTI will be assumed. (Single control data fields can be processed with MULTI specified, but with less efficiency than if ONE were specified.)
- ONE – The program desired will process records that contain only one control data field. This parameter will cause the Sort Definition program to omit from the sort or merge program the instructions and modules necessary to handle multiple control fields.



- UNMOD – The program desired will contain only the modules selected, and no user-written routines. This parameter instructs the Sort Definition program not to look for added programming. If neither UNMOD nor MOD is specified, UNMOD will be assumed.
- MOD – The program desired will contain the user's routines in addition to the modules selected. This parameter instructs the Sort Definition program to look for and include added programming supplied by the user. If no added programming has been included, the Sort Definition program will change this designation to UNMOD. The nature of added programming and how it can be incorporated through the Sort Definition program are discussed in "Program Modification."
- PCH – If this parameter is included, the Sort Definition program will place its output on the Standard Punch Unit (SPU) as well as on the normal output unit, MW2. This punched output can be used as input to the Linkage Loader from the SIU to produce the same sort or merge program during subsequent runs.

*Card Columns 73-80:* These columns are unused.

Example: In order to: (a) define an unmodified sort program that will process variable-length records with multiple control fields; (b) give the resultant program the name SORTTEST; and (c) have the output from the Sort Definition program punched out, as well as written on MW2, the Sort Definition card shown in Figure 6 could be used:

```
Col-
umn:      6      13      16      21      41
          SORTTEST  DSORT  SORT,VARIABLE,MUL,PCH
```

Figure 6. Example of the Sort Definition Card

- NOTE: 1. The program will assume UNMOD had been indicated, since neither it nor the parameter MOD appears.
2. The parameter VARIA has been expanded to increase its mnemonic value.
3. The parameter MULTI has been condensed to the first three characters.

### Unit Definition Card

The function of the Unit Definition card is to specify the symbolic input and output units. The format of the Unit Definition card and the permissible parameters are discussed below.

*Card Columns 1-5:* These columns are unused.

*Card Columns 6-15:* This field must be blank.

*Card Columns 16-20:* Card Identification – The Unit Definition card is identified by the mnemonic DUNIT.

*Card Columns 21-72:* Parameter List – This field specifies the symbolic input and output tape units for the sort or merge program to be produced (see below). The symbolic units are designated by system symbols, starting in column 21, without initial and final slashes (e.g., MW1 instead of /MW1/). The function and use

of symbolic units are fully described in the publication *System Monitor*. The symbolic names are separated by commas with no intervening blanks. Parameter analysis terminates on the recognition of the first blank character, and further information on the card is ignored. The order in which the symbolic units are placed in the DUNIT card is of prime significance, and the order required for a sort program differs from the order required for a merge program.

*Card Columns 73-80:* These columns are unused.

SORT PARAMETERS (PLACED IN THE PARAMETER-LIST FIELD, COLUMNS 21-72)

The first parameter designates the symbolic unit to which the sort *input* file will be assigned. If the input is to be from the SIU, a symbolic unit must be designated here. At object time, the user specifies SIU in the INPBLKNG parameter on the INPUTFILE control card. Thus the sort program(s) defined can have either tape or SIU input, depending on the user's course of action at object time.

The second parameter designates the symbolic unit to which the user will assign the physical tape units that will be considered the first set of merge tapes. In a balanced merge, the number of physical units required is equal to the order of the merge to be performed. In an unbalanced merge, the number of physical units required is equal to the greater order of merge to be performed. The physical units assigned must be different from those assigned for input. For optimum efficiency the units assigned to this symbolic unit should not be on the same data channel as the input units.

The third parameter designates the symbolic unit to which the user will assign the physical tape units that will be considered the second set of merge tapes. In a balanced merge, the number of physical units required is equal to the order of the merge to be performed. In an unbalanced merge, the number of physical units required is equal to the lesser order of merge to be performed. The physical units assigned must be either completely different from or completely identical to those assigned to the input unit. For optimum efficiency the units assigned to this symbolic unit should not be on the same data channel as those assigned as the first set of merge tapes.

Initial input to Phase 1 will be from the symbolic unit designated in the first parameter, unless the user specifies SIU in the INPBLKNG parameter of the INPUTFILE control card. Phase 1 output is to the first set of merge tapes, specified by the symbolic unit in the second parameter. The first pass of Phase 2 will be from the first set of merge tapes to the second. Subsequent passes of Phase 2 will alternate the direction of the merge. Depending on the number of merge

passes made by Phase 2, the output of Phase 3 may be on either the second or third symbolic unit.

Example: To have input to a sort from MR1, with MR2 as the first set of merge tapes and MR3 as the second set of merge tapes, the Unit Definition card shown in Figure 7 would be used.

```
Col-
umn:      6          16          21          31
          blank      DUNIT  MR1,MR2,MR3
```

Figure 7. Example of a Unit Definition Card for a Sort Program

MERGE PARAMETERS (PLACED IN THE PARAMETER-LIST FIELD, COLUMNS 21-72)

The first parameter designates the symbolic unit to which the merge *output* file will be assigned.

The remaining *m* parameters designate the *m* *input* files to the merge (where *m* may be from 1 to 8). Thus, if a four-way merge is desired, the second, third, fourth, and fifth parameters are the system symbols defining the symbolic units to be used as input to the merge program. If optimum program efficiency is to be obtained, the input units should not be on the same physical channel as the output unit. The user can specify a maximum number of symbolic units, although less than this number may be used at object time.

Example: To merge three files from MR1, MR2, and MR3 with output on MRA, the Unit Definition card shown in Figure 8 should be used.

```
Col-
umn:      6          16          21          35
          blank      DUNIT  MRA,MR1,MR2,MR3
```

Figure 8. Example of a Unit Definition Card for a Merge Program

### Sort Definition Program Operation

The Sort Definition program is included as part of the relocatable library on the Master file. The publication *System Generation* explains how the program, as part of the library, can be included in subsequent libraries during System Generation.

Prior to execution, the Sort Definition program must be either: (a) relocated through use of the Linkage Loader and placed in absolute form on the MJB file, using the cards shown in Figure 9; or (b) if relocated while in the sg (System Generation) mode, placed on the System Generation file (SCF) or a System Operating file (SOF), using the card shown in Figure 10.

```
Col-
umn:      16          21
          PHASE  SORTDEFINE
          CALL  IBSRTDEFIN
```

Figure 9. Control Cards for Relocating the Sort Definition Program (Program Placed on MJB)

```
Col-
umn:      16          21
          CREAT  TSRTDEFIN
```

Figure 10. Control Card for Relocating the Sort Definition Program (Program Placed on SGF or SOF)

Once the Sort Definition program has been relocated through use of the Linkage Loader, it may be executed with the cards shown in Figure 11.

```
Col-
umn:      6          16          21
          :
          :
MON$$     EXEQ  SORTDEFINE
... (name) .. DSORT ... (parameters)...
          DUNIT ... (parameters)...
          (other cards as desired)
MON$$     EXEQ  LINKLOAD
          (other cards as desired)
          INPUT MW2
          :
          :
```

Figure 11. Control Cards for Execution of Sort Definition Program

If the Sort Definition program has been placed on the scf or sof in absolute format, it may be executed as part of a System Generation run; the resultant sof will include the sort or merge program(s) specified. The location of the sort or merge program(s) on the new sof can be controlled through proper placement of the Sort Definition program EXEQ and control cards in the System Generation control card deck. The Sort Definition EXEQ and control cards must be in the appropriate position relative to the INCLD cards of the preceding and succeeding executions of scl. Both the scl and the Sort Definition programs use symbolic unit mw2 for output; this output is used as input to the Linkage Loader.

```
6          16          21
MON$$$     EXEQ  SG1
          INCLD PROGRAM1
          END
MON$$$     EXEQ  SORTDEFINE
SORTA     DSORT ... (parameters)...
          DUNIT ... (parameters)...
SORTB     DSORT ... (parameters)...
          DUNIT ... (parameters)...
MON$$$     EXEQ  LINKLOAD
          INPUT MW2
MON$$$     EXEQ  SG1
          INCLD PROGRAM2
          END
MON$$$     EXEQ  SORTDEFINE
SORTC     DSORT ... (parameters)...
          DUNIT ... (parameters)...
          :
          :
          (User modification cards)
          :
          :
MON$$$     EXEQ  LINKLOAD
          INPUT MW2
MON$$$     EXEQ  SG1
          INCLD PROGRAM3
          END
```

Figure 12. Control Cards for Execution of Sort Definition Program during System Generation

As an example of the operation, assume that Programs 1, 2, and 3, in addition to the Sort Definition Program, reside on the System Generation source file in absolute format and the following sequence of absolute programs is desired on the new sof:

```
PROGRAM 1
SORT A
MERGE A
PROGRAM 2
SORT B (with modifications)
PROGRAM 3
```

To produce the desired sequence of programs on the sof, the cards shown in Figure 12 would be used as part of the siu control card deck for the System Generation run.

Additional material and examples on the use of the Sort Definition program during System Generation are contained in the publication, *System Generation*.

## Messages

The meanings of messages that the program may produce during execution of the Sort Definition program are explained in this subsection.

Each message produced on the console printer and/or the Standard Print Unit (spr) by the Sort Definition program will begin with a five-digit identification code. The code numbers have been designed to increase the information value of the messages. The complete description of the codes is contained under "Messages," in the "Program Operation" section.

00301 *Console:* 00301- SDP  
*SPR:* 00301- INSUFFICIENT SORT DEFINITION CARDS

*Explanation:* Either the DSORT or DUNIT card is missing and the Sort Definition program cannot complete its execution. Indication will be given to the System Monitor that any subsequent dependent program(s) should not be executed and the Monitor should skip to the next job if possible. The 00399 message will also be written on the SPR.

*Action:* No operator action is possible. The user must provide the missing control card and re-execute.

00399 *Console:* None  
*SPR:* 00399- END SORT DEFINITION PROGRAM

*Explanation:* For general diagnostic use. The Sort Definition program has been given an end-of-file indication on the SIU by the System Monitor and has completed execution.

*Action:* No operator action required. The program will return control to the Monitor to execute the next program.

10301 *Console:* None  
*SPR:* 10301- ERROR IN DSORT OR DUNIT IDENT. - (invalid card) -

*Explanation:* A card has been read which should be either a DSORT or DUNIT card but does not contain either identification in columns 16 through 20. The entire contents of the card in error are printed. Execution is continued. This will be followed by message 20304 and a waiting loop.

*Action:* None

10302 *Console:* None  
*SPR:* 10302- INVALID PARAMETER IN DSORT CARD - (invalid card) -

*Explanation:* One of the parameters specified on the DSORT card is not a valid parameter. The entire contents of the card containing the invalid parameter are printed. The invalid parameter is rejected by the program and execution is continued. This will be followed by message 20304 and a waiting loop.

*Action:* None

10303 *Console:* None  
*SPR:* 10303- INSUFFICIENT UNITS DEFINED DUNIT CARD - (invalid card) -

*Explanation:* Less than three symbolic units for a sort or two symbolic units for a merge have been designated on the DUNIT card. The card is rejected and the entire contents are printed. The Sort Definition program continues to search for a valid DUNIT card or a DSORT card until the program either finds the valid card or reaches a Monitor card. This will be followed by a 20304 message and a waiting loop.

*Action:* None

10304 *Console:* None  
*SPR:* 10304- VVVVVVVVVV IS DEFINED WWWWWW - XXXXX - YYYYY - ZZZZZZZZ

*Explanation:* For general diagnostic use. The Sort Definition program has completed the definition of a sort or merge of the following description:

VVVVVVVVVV is the name assigned on the DSORT card by the user

WWWWW is SORT or MERGE

XXXXX is FIXED or VARIA

YYYYY is UNMOD or MODIF

ZZZZZZZ is MULTI CF or ONE CF

The program will continue execution.

*Action:* None required

10305 *Console:* None  
*SPR:* 10305- NO NAME GIVEN FOR SORT

*Explanation:* No name was assigned to the program being produced. Thus, the program can only be executed as a phase of a larger program. This will be followed by message 20304 and a waiting loop.

*Action:* None

20304 *Console:* 20304- VVVVVVVVVV IS WWWWWW - XXXXX - YYYYY - ZZZZZZZZ  
*SPR:* 20304- VVVVVVVVVV IS WWWWWW - XXXXX - YYYYY - ZZZZZZZZ

*Explanation:* One or more potential control card errors were detected by the Sort Definition program. The program continued execution to completion but there is a possibility that undesired results were achieved. The sort or merge program has been defined as follows:

VVVVVVVVVV is the name assigned on the DSORT card by the user

WWWWW is SORT or MERGE

XXXXX is FIXED or VARIA

YYYYY is UNMOD or MODIF

ZZZZZZZ is MULTI CF or ONE CF

After writing the message the program will enter a waiting loop.

*Action:* Press INQUIRY REQUEST. If the program defined is acceptable and continued execution is desired, type the three characters \$31 and press INQUIRY RELEASE. If the program defined is not acceptable and further execution is not desired, type the three characters \$32 and press INQUIRY RELEASE. In the latter case, the program will proceed as with an uncorrectable error. The 00399 message will be written on the SPR. Typing of any other units digit will not break the waiting loop.

## Program Operation

### Preparation of Control Cards

In order for a file or group of files to be processed, certain information must be supplied to the sort or merge program. This data includes a description of the logical records, the input and output files, and the control fields on which the records are to be sorted. Other information concerning options, tape labels and modifications may also be needed.

Each control card is subject to an extensive validity check; however, the program cannot possibly protect the user against all possible erroneous entries and inconsistent combinations of entries. Therefore, accurate preparation of control cards by the user is of prime importance to the successful running of the program.

### Format Description

The format of the sort/merge control cards, which is similar to that used throughout the Operating System, is as follows:

*Card Columns 1-4:* These columns are unused.

*Card Column 5:* End Card Indicator — The letter “E” is required in this column if this card is the *last* sort/merge program control card, and any card other than a System Monitor control card immediately follows. This will prevent the general assignment routine of the sort or merge program from reading beyond its own cards.

*Card Columns 6-15:* Card Type — The card type is placed in this field. The entry must be left-justified in the field, with any unused positions left blank. There are five different types of program operation control cards (see the “Control Card Types” subsection).

*Card Columns 16-20:* Control Card Identifier — The characters SORT are punched in columns 16-19, with column 20 blank (i. e., SORTb), to indicate a sort or merge program control card.

*Card Columns 21-71:* Parameter List — The sort or merge program parameters are placed in this field, using the general format

ABC-kk, DEF-mmm, GHI-o . . . XYZ-nnb

where:

ABC, DEF, GHI, and XYZ are the parameter labels naming the parameters. These labels may be expanded for increased mnemonic value, or reduced to the first three characters.

kk, mmm, o, and nn stand for the parameter values to be assigned by the user. Their length depends on the parameter used. The character b is a blank character following the last parameter. Information between this blank character and column 72 will be ignored.

*Card Column 72:* This column is always blank.

*Card Columns 73-80:* User’s Identification — This field may be used to identify the particular sort or merge run. The contents of this field will be included in the program identification message on the SPR (code 10301).

### SPECIFICATIONS

1. The character “-” is used to separate the parameter label and parameter-value fields, and must not appear in other locations on the control cards.
2. The character “;” is used to separate parameters and must not appear in other locations on the control cards.
3. Blank characters may appear anywhere in the parameter label field except in the first three positions. Blank characters must not, however, appear within the parameter-value field. The last parameter must be followed by a blank character.

NOTE: Restrictions regarding commas, hyphens, and blank characters, as indicated in the above specifications, do not apply to the placement of these characters in the parameter-value fields of the IFILEIDENT, MFILEIDENT, and OFILEIDENT parameters. (See “LABELDES Parameters,” under “Control Card Types.”)

4. Group marks must not appear in any position on the control cards.
5. The length of a parameter-value field must not exceed the allowable number of characters for the field.
6. A parameter label and its value (ABC-NN) must be contained on one card.
7. Parameters may appear in any order on the cards.
8. Any number of cards of each type may be used.
9. Leading zeros in numeric fields (except numeric fields of LABELDES parameters) may be omitted.

### Control Card Types

The five different types of control cards that may be used are:

CARD TYPE	DESCRIPTION
<b>SORTTYPE</b>	This card is used to provide general information about the file to be sorted or the files to be merged, and the manner of processing.
<b>INPUTFILE</b>	This card supplies information pertaining to the input file.
<b>OUTPUTFILE</b>	This card supplies information pertaining to the output file.
<b>CNTLFLDS</b>	The control data fields upon which the sort or merge program will operate are indicated on this card.
<b>LABELDES</b>	The tape-label requirements of the input, merge and output files are described on this card. This card type is required <i>only</i> if tape labels are used.

In the following paragraphs, the parameters that can be used for each control card type are described. In each case, the parameter itself (parameter label, hyphen, and parameter value) is given, followed by an indication as to whether the parameter is required, optional, or required only under or for certain conditions. Following this is a description of the structure and use of the parameter.

If the contents of the parameter-value field are variable, an "n" is used to represent each position of the field. When the user is preparing the control cards, he must punch the appropriate value in this field. A capital letter in the parameter-value field is the specific code for that field.

### **SORTTYPE Parameters**

#### **RECLEN-nnnn** (Required)

The parameter-value field is numeric, with a maximum length of four characters, and specifies the data-record length for fixed-length records, or the maximum data-record length for variable-length records, including the terminal record mark if specified in either case. (If the record length is changed by user modification, the parameter-value field must specify the length of the data records as processed by the program.) The maximum and minimum values possible are specified in "Features and Specifications," under "Input and Output Specifications."

#### **MERGEORD-n** (Required)

The single-character parameter-value field is numeric, and specifies the merge order to be employed in a merge or sort using a balanced merge. If the program is a sort using an unbalanced merge, the field specifies the greater of the merge orders to be employed. For a sort, the value may be from two to five. For a merge, the value may be from one to eight.

#### **UNBALANCED-n** (Optional)

The single-character parameter-value field is numeric and specifies the lesser of the merge orders to be employed in a sort using an unbalanced merge. The value may be from one to four.

### **OPTIMB-n** (Optional)

The single-character parameter-value field is alphabetic. This parameter applies to sort programs only. The sort will determine an optimum sort blocking factor (B) and internal sort size (G), based on core availability, merge order, an assumed random sequencing of the input file, the input blocking factor, the output blocking factor, data-record length, etc. If the user desires, he may use this parameter to influence the B and G calculations. The following parameter values can be used:

PARAMETER VALUE	MEANING
Y	Compute B and G, making B as large as possible while not reducing G to an inefficient point. This option might be specified if, for example, the input file is known to have a high degree of sequencing (see "Glossary"). In case a smaller G would not necessarily increase the number of Phase 2 merge passes but would reduce the Phase 1 processing time, the larger B would reduce the tape processing time. The effect would be a possible reduction of over-all sort time.
N	Compute B and G, making G as large as possible while not reducing B to an inefficient value. This option might be used if the input file was known to have some degree of inverse sequencing. The larger G may reduce the number of sequences produced by Phase 1, thereby possibly saving a Phase 2 merge pass.
M	This option instructs the sort to use the sort blocking factor specified by the SORTBLK parameter for fixed-length records, or the maximum sort block length specified by the BLKLEN parameter for variable-length records. If the value specified is found to be too large, the program will take the next largest value that can be used. One situation in which this option might be used would be where the sort was to operate in a system that included Tele-processing equipment; in this case, it might be desired that tape record lengths be limited.

#### **SORTBLK-nnnn**

(Required only with option "M" of the OPTIMB parameter, with fixed-length records)

The parameter-value field is numeric, with a maximum length of four characters. The user places the desired sort blocking factor in this field.

#### **BLKLEN-nnnn**

(Required only with option "M" of the OPTIMB parameter, with variable-length records)

The parameter-value field is numeric, with a maximum length of four characters. The user places the maximum sort block length desired in this field. This specified length must include the four-character Block Character-Count field.

#### **CHKPOINT-Y** (Optional)

This parameter is used to specify that the sort or merge program should activate its linkages to the iocs checkpoint routine. "Y" is the only valid entry.

DESCEND-D (Optional)

This parameter is used to specify that the sort or merge program should arrange the output file in descending collating sequence. If the parameter is not provided, the file will be processed in ascending collating sequence. "D" is the only valid entry.

TAPEDEN-n (Optional)

The single-character parameter-value field is numeric, and specifies the density of the merge tapes being used. The following parameter values can be used:

PARAMETER VALUE	MEANING
2	200 characters per inch
5	556 characters per inch
8	800 characters per inch

If this parameter is not provided, a density of 556 characters per inch will be assumed.

UNLOAD-Y (Optional)

This parameter, used with a sort only, requests that the input and output merge tapes be rewound and unloaded at the completion of each pass in Phase 2. This option is of value in relatively large-volume sorts using 7330 tape drives; it forces high-speed rewinding of the drives at the end of each pass. "Y" is the only valid entry. If this option is not specified, the merge tapes will be rewound but not unloaded (i.e., option RRRR — see "REWIND" under "INPUTFILE Parameters").

LSIZMOD-nnnnn (Optional)

The parameter-value field is numeric, with a maximum length of five characters. This parameter is used to specify the total number of positions of core storage that will be reserved for added programming during execution of Phase 1 of a sort program; the actual number should be placed in the parameter-value field. This parameter should be used only if added programming is present during Phase 1.

2SIZMOD-nnnnn (Optional)

The parameter-value field is numeric, with a maximum length of five characters. This parameter is used to specify the total number of positions of core storage that will be reserved for added programming during execution of Phase 2 of a sort program; the actual number should be placed in the parameter-value field. This parameter should be used only if added programming is present during Phase 2.

3SIZMOD-nnnnn (Optional)

The parameter-value field is numeric, with a maximum length of five characters. This parameter is used to specify the total amount of core storage that will be reserved for added programming during execution of Phase 3 of a sort program; the actual number should be placed in the parameter-value field. This parameter

should be used only if added programming is present during Phase 3.

ERROPTION-n (Optional)

The single-character parameter-value field is alphabetic. This parameter allows the user to communicate to the IOCS, through the sort or merge program, the error option desired. The options are those offered by the ERROPTNS DTF entry of the IOCS.

The following parameter values can be used:

PARAMETER VALUE	MEANING
A	This parameter value will cause the IOCS to process all uncorrectable, erroneous records in the file as if they were error free (i.e., release them to the sort or merge program as the IOCS would release a record read into core storage without error).
S	This parameter value will cause the IOCS to read the next tape record into the same input area that contains the uncorrectable erroneous record, thereby destroying that record.

If this parameter is not included, the "A" value will be assumed.

CNSLMSG-Y (Optional)

This parameter is used to specify that the sort or merge program should issue console messages for messages 10310, 10321, and 10330, in addition to the information printed out on the SPR. The wording of each console message can be found under "Messages" in the "Program Operation" section.

**INPUTFILE Parameters**

RECFORM-n (Required)

The single-character parameter-value field is numeric, and specifies the record format. The parameter values (which generally correspond to IOCS Form definitions), and the nature of the record formats represented, are as follows:

PARAMETER VALUE	NATURE OF RECORD FORMAT
1	Unblocked fixed- or variable-length records that may or may not terminate in a record mark (Form 1 records). This parameter value should also be used for Form 3 fixed-length records.
2	Blocked fixed-length records. Each record <i>must</i> terminate in a record mark (Form 2 records).
3	Identical to Form 1 records, with the exception that the first four positions of every Form 3 record contain a Block Character-Count as specified by IOCS (Form 3 records). A "1" should be used for Form 3 fixed-length records.
4	Blocked variable-length records that contain a terminal record mark and a Record Character-Count, as specified by IOCS (Form 4 records). In addition, the first four positions of each block of Form 4 records contain a Block Character-Count.

INPBLKNG-nnnn (Required only for Form 1, 2 and 3 records)

The parameter-value field is numeric (unless the input is on the SIU), with a maximum length of four characters; it specifies the blocking factor of the input file for fixed-length records, indicates the type of unblocked variable-length records, or indicates that the input is on the SIU. The following parameter values can be used:

PARAMETER VALUE	TYPE OF RECORDS
0000	Unblocked, without terminal record marks (Form 1 or 3)
0001	Unblocked, with terminal record marks (Form 1 or 3)
SIU	The input is in the SIU and is unblocked, without terminal record marks (Form 1). (The parameters LENMODREC and RECFORM will be disregarded; the corresponding fields in Sort Common for these parameters and the INPBLKNG parameter will be set to conform to this type record.)
(Number of Data Records)	Blocked, with terminal record marks (Form 2)

This parameter is not used for Form 4 records.

BLKLEN-nnnn (Required only for Form 4 records)

The parameter-value field is numeric, with a maximum length of four characters. This parameter is required to specify the maximum input block length for Form 4 records only. The maximum input block length possible is described under "Input Specifications," in "Features and Specifications." This parameter is not used for Form 1, 2, or 3 records.

CHARCNTSIZ-n (Required only for Form 4 records)

The single-character parameter-value field is numeric, and specifies the number of characters in the Record Character-Count field, if present. This parameter is required for Form 4 data records. Since the sort or merge program can use a Record Character-Count field with Form 1 and 3 variable-length records to improve efficiency in processing wherever possible, this parameter is optional for records of those types. If used with Form 1 and 3 variable-length records, this parameter must be accompanied by the parameter LOCCHARCNT.

LOCCHARCNT-nnnn (Required only for Form 4 records)

The parameter-value field is numeric, with a maximum length of four characters. This parameter specifies the location of the low-order position of the Record Character-Count field (if present) in the record, relative to the beginning of the data record. This parameter is required with Form 4 data records, and is optional with Forms 1 and 3 variable-length records. If this parameter is provided along with the parameter

CHARCNTSIZ for Form 1 or Form 3 variable-length records, the program will use the Record Character-Count field to improve efficiency wherever possible.

LENMODREC-nnnn (Optional)

The parameter-value field is numeric, with a maximum length of four characters. This parameter specifies the *input* data-record length for fixed-length records or maximum *input* data-record length for variable-length records, if the length is changed through a Phase 1 modification. It is not required if the input data-record length is not changed. The minimum and maximum values possible are described under "Input Specifications," in "Features and Specifications."

FILESIZE-nnnnnnn (Optional)

The parameter-value field is numeric, with a maximum length of seven characters. This parameter specifies the total number of records (including padding records, if any) in the input file, if this information is known. When this parameter is specified, the general assignment routine will check to see whether or not this number of records will exceed sort capacity (the number of records that can fit on  $m - 1$  tape reels at sort blocking), and the program will check to see if it has received the total number of records.

PARITY-n (Optional)

The single-character parameter-value field is alphabetic, and specifies the parity in which the input file is to be read. If the parameter is omitted, even parity will be assumed. The parameter values that can be used are as follows:

PARAMETER VALUE	MEANING
E	Even parity
O	Odd parity

MODE-n (Optional)

The single-character parameter-value field is alphabetic, and specifies the mode in which the input file is to be read. If the parameter is omitted, Move mode will be assumed. The parameter values that can be used are as follows:

PARAMETER VALUE	MEANING
M	Move mode
L	Load mode

REELCNT-nn (Optional)

The parameter-value field is numeric, and can be one or two characters. This parameter specifies to a sort program the number of reels of tape to be processed in the input file. If "99" is specified, a message is typed instructing the operator to enter the number of

reels of input to the sort program. If the REELCNT parameter is omitted, the sort will process input records until an end-of-file trailer label is recognized, or, with unlabeled files, until the first tape mark is reached. This parameter is valid only with a sort program.

1REELCNT-*nn* (Optional)

The parameter-value field is numeric, and can be one or two characters. This parameter specifies to a merge program the number of reels of tape to be processed in the first input file. If this parameter is omitted and a Y is entered in the sixth position of the ICHCKLBL parameter-value field (see "LABELDES Parameters"), the merge processes input records from this file until the end-of-file trailer label is recognized. If this parameter is omitted and Y is not entered (or if unlabeled tapes are used), the merge processes input records from this file only until the first tape mark is reached.

2REELCNT-*nn* (Optional)    6REELCNT-*nn* (Optional)  
 3REELCNT-*nn* (Optional)    7REELCNT-*nn* (Optional)  
 4REELCNT-*nn* (Optional)    8REELCNT-*nn* (Optional)  
 5REELCNT-*nn* (Optional)

Each of these parameters is identical in function to 1REELCNT-*nn* for the second through eighth input files, respectively. These parameters are valid only with a merge program. The number of these REELCNT parameters used must be equal to the number of input files.

REWIND-*nnnn* (Optional)

The four-character parameter-value field is alphabetic, and specifies the iocs rewind options desired for the sort or merge input file(s).

Each of the four parameter-value characters must be one of the following:

PARAMETER VALUE	MEANING
R	Rewind the tape reels
U	Rewind and unload the tape reels
N	Take no action

The character in the first (left-hand) parameter-value field position causes the iocs to perform the specified action (or no action) on the first reel of each input file, at the beginning of the reel. The character in the second position causes the iocs to act on all subsequent reels of each file, at the beginning of each reel. The character in the third position causes the iocs to act on all the reels of the file (except the last reel) when the end of each reel is reached. The character in the fourth position causes the iocs to act on the last reel of each file when the end of that reel is reached.

If this parameter is included, all four selected characters must appear in the parameter-value field. If

the parameter is omitted, the options RRUU are assumed.

### OUTPUTFILE Parameters

OUTBLKNG-*nnnn* (Required only for Form 1, 2 and 3 records)

The parameter-value field is numeric, with a maximum length of four characters. It either specifies the blocking factor of the output file for fixed-length records, or indicates the type of unblocked variable-length records. The parameter values that can be used are as follows:

PARAMETER VALUE	MEANING
0000	Unblocked, without terminal record marks (Form 1 or 3)
0001	Unblocked, with terminal record marks (Form 1 or 3)
(Number of Data Records) 2	Blocked, with terminal record marks (Form 2)

This parameter is not used for Form 4 records.

BLKLEN-*nnnn* (Required for Form 4 records only)

The parameter-value field is numeric, with a maximum length of four characters. This parameter is required to specify the maximum output block length for Form 4 variable-length records only. This length must include four positions for the Block Character-Count field. Maximum output block length possible is described under "Output Specifications," in "Features and Specifications." This parameter is not used for Form 1, 2, or 3 records.

LENMODREC-*nnnn* (Optional)

The parameter-value field is numeric, with a maximum length of four characters. This parameter specifies the *output* data-record length for fixed-length records or maximum *output* data-record length for variable-length records, if the length is changed through a Phase 3 or merge-program modification. It is not required if the output data-record length is not changed. The minimum and maximum values possible are described under "Output Specifications," in "Features and Specifications."

PADDING-*n* (Optional)

The single-character parameter-value field is numeric, and indicates the padding option desired with blocked fixed-length output records. For an ascending sort or merge, a low padding record is one consisting of all blank characters (except the terminal record mark) and a high padding record is one consisting of all nines (except for the terminal record mark). For a



descending sort or merge, records composed entirely of nines constitute low padding, and blank records are high padding.

If this parameter is not included, and blocked fixed-length output is specified, the first option will be assumed. The following parameter values can be used:

PARAMETER VALUE	MEANING OF OPTION
1	The program will not check for padding records. High padding records will be added if required.
2	All low padding records and all full blocks of high padding records will be dropped. Added padding, if required, will be high padding.
3	Full blocks of high padding and low padding will be dropped. Added padding, if required, will be low padding. This option is invalid for a merge program if the total file size is not specified. If the file size is changed by Phase 3 modifications, high padding may be added.
4	Full blocks of low padding will be dropped. Added padding, if required, will be low padding. This option is invalid for a merge program if the total file size is not specified. If the file size is changed by Phase 3 modifications, high padding may be added.
5	Full blocks of low padding and high padding will be dropped. Added padding, if required, will be high padding.
6	Full blocks of high padding will be dropped. Added padding, if required, will be high padding.

**PARITY-n** (Optional)

The single-character parameter-value field is alphabetic, and specifies the parity with which the output file is to be written. If the parameter is omitted even parity will be used. The following parameter values can be used:

PARAMETER VALUE	MEANING
E	Even parity
O	Odd parity

**MODE-n** (Optional)

The single-character parameter-value field is alphabetic, and specifies the mode in which the output file is to be written. If the parameter is omitted, Move mode will be used. The following parameter values can be used:

PARAMETER VALUE	MEANING
M	Move mode
L	Load mode

**REWIND-nnnn** (Optional)

The four-character parameter-value field is alphabetic, and specifies the iocs rewind options desired for the

sort or merge program output file. The parameter options are identical to those for the **REWIND** parameter of the **INPUTFILE** control card. All four characters are required in the parameter-value field. If the parameter is omitted, the options **RRUU** are assumed.

**CNTFLDS Parameters**

**NUMBER-n** (Required)

The single-character parameter-value field is numeric, and specifies the number of control data fields on which the sort or merge program is to be based. The number inserted in the parameter-value field may be 1 to 9, or 0 (for ten control data fields).

**LENGTH-nnnn** (Required)

The parameter-value field is numeric, with a maximum length of four characters, and specifies the total length of all control data fields.

**LOC-nnnn** (Required)

The parameter-value field is numeric, with a maximum length of four characters, and specifies the location of the low-order position of the major control data field, relative to the beginning of the data record.

**LEN-nnn** (Required)

The parameter-value field is numeric, with a maximum length of three characters, and specifies the length of the major control data field.

In the following parameters, all optional, the parameter-value fields are all numeric. In the **LOC** parameters, the parameter-value field has a maximum length of four characters, and specifies the location of the low-order position of the control data field, relative to the beginning of the record. In the **LEN** parameters, the parameter-value field has a maximum length of three characters, and specifies the length of the control data field.

**2LOC-nnnn** (Optional)

Location of second control data field.

**2LEN-nnn** (Optional)

Length of second control data field.

**3LOC-nnnn** (Optional)

Location of third control data field.

**3LEN-nnn** (Optional)

Length of third control data field.

**4LOC-nnnn** (Optional)

Location of fourth control data field.

4LEN-nnn (Optional)  
Length of fourth control data field.

5LOC-nnnn (Optional)  
Location of fifth control data field.

5LEN-nnn (Optional)  
Length of fifth control data field.

6LOC-nnnn (Optional)  
Location of sixth control data field.

6LEN-nnn (Optional)  
Length of sixth control data field.

7LOC-nnnn (Optional)  
Location of seventh control data field.

7LEN-nnn (Optional)  
Length of seventh control data field.

8LOC-nnnn (Optional)  
Location of eighth control data field.

8LEN-nnn (Optional)  
Length of eighth control data field.

9LOC-nnnn (Optional)  
Location of ninth control data field.

9LEN-nnn (Optional)  
Length of ninth control data field.

0LOC-nnnn (Optional)  
Location of tenth control data field.

0LEN-nnn (Optional)  
Length of tenth control data field.

#### LABELDES Parameters

The following parameters enable the user to communicate to the IOCS, through the sort or merge program, the tape-label information desired for the File Table Extensions for the input, merge, and output files. *The LABELDES card is used only if labels are to be processed.* If this card (with TYPELABEL parameter) is included, the sort or merge program will: (a) indicate in each File Table used that tape labels are to be processed, and (b) supply the address of the appropriate input, merge, or output File Table Extension. Numeric information in LABELDES parameters should include leading zeros.

Sort and merge programs provide none of the label-handling routines; they only move the desired information to the appropriate File Table Extensions. The function, use and applicability of each of the param-

eters should be determined by consulting the publication *Basic Input/Output Control System*.

#### TYPELABEL-n

(Required only if the LABELDES card is used; i. e., if tape labels are to be processed)

The single-character parameter-value field is numeric, and specifies the type of tape labels used for the sort or merge files. The following parameter values can be used:

PARAMETER VALUE	MEANING
1	1410 80-character labels
2	IBM Standard 120-Character labels
3	Nonstandard labels

The following six optional parameters provide File Table Extension information for the input file of a sort program.

#### ICHCKLBL-nnnnnn

The six-character parameter-value field is alphabetic, and specifies tape-label fields that should be checked. Each character may be:

PARAMETER VALUE	MEANING
Y	Check
N	Do not check

The six character positions (from left to right) in the parameter-value field stand for the following tape-label fields:

1st Position	— Retention period
2nd Position	— Creation date
3rd Position	— File identification
4th Position	— File serial number
5th Position	— Reel sequence number
6th Position	— Block count

NOTE: If the user is processing labeled multireel files, the sixth position (block count position) of the parameter-value field should contain a Y.

#### IRTNCYCLE-nnn (or nnnn)

The parameter-value field contains the actual retention period; it should be three characters for 80-character tape labels, or four characters for 120-character tape labels.

#### ICREATDATE-nnnnn

The five-character parameter-value field contains the creation date.

#### IFILEIDENT-nnnnnnnnnn

The ten-character parameter-value field contains the file identifier. The program allows the user to specify this field as he desires, and include file identifiers containing comma, blank, and hyphen characters; however, two restrictions must be observed: the parameter-

value field of this parameter *must* be ten characters in length, and the parameter must always be followed by a comma, even if it is the last parameter on a card.

ISERIALNO-nnnnn

The five-character parameter-value field contains the file serial number.

IREELSEQ-*nnn* (or *nnnn*)

The parameter-value field contains the reel sequence number. The field is three characters for 80-character tape labels, and four characters for 120-character labels.

The following six optional parameters provide File Table Extension information for the merge files of a sort program or the input files of a merge program. The specifications for each parameter are the same as those for the equivalent sort input file parameter.

MCHCKLBL-nnnnnnn

Tape-label field checking options. For a sort program, the Block Count tape-label field should not be checked. If the field is specified for checking, a message indicating an incorrect Block Count on input will be given by the IOCS.

MRTNCYCLE-*nnn* (or *nnnn*)

Retention period.

MCREATDATE-nnnnnnn

Creation date.

MFILEIDENT-nnnnnnnnnnn

File identifier.

MSERIALNO-nnnnnnn

File serial number.

MREELSEQ-*nnn* (or *nnnn*)

Reel sequence number.

The following six optional parameters provide File Table Extension information for the output file of a sort or merge program. The specifications for each parameter are the same as those for the equivalent parameter for the sort program input file.

OCHCKLBL-nnnnnnn

Tape-label field checking options.

ORTNCYCLE-*nnn* (or *nnnn*)

Retention period.

Ocreatdate-nnnnnnn

Creation date.

Ofileident-nnnnnnnnnnn

File identifier.

Oserialno-nnnnnnn

File serial number.

Oreelseq-*nnn* (or *nnnn*)

Reel sequence number.

### Operating Information

Prior to execution of a sort or merge program as part of a job, physical tape units must be assigned to the symbolic units which were specified for the program. For a sort program, sufficient units must be assigned to each merge file to allow the sort to execute a merge of the order specified in the control cards. For example, assume that the following conditions exist for a sort:

Merge order	3
Input file	MR1
First merge file	MR2
Second merge file	MR3
Available tape units, channel 1	A1, A3, A5, A7
Available tape units, channel 2	B2, B3, B4, B5, B6

Assume also that the input file is multi-reel, so that alternate input units are desired. In this case the input file should have channel 2 tapes assigned, since that channel has five units available, two for input and three for merging. The first merge file should have channel 1 tape units assigned and the second merge file channel 2 tapes. Thus, the System Monitor ASGN cards shown in Figure 13 should be used.

Co1- umn:	6	16	21
	MON\$\$	ASGN	MR1, B2, B3
	MON\$\$	ASGN	MR2, A1, A3, A5
	MON\$\$	ASGN	MR3, B4, B5, B6

Figure 13. Sample Unit Assignment

The sort or merge program is executed by supplying a System Monitor execute card followed by the desired sort control cards on the siu. The program name on the execute card is the name that was specified for the program in columns 6-15 of the Sort Definition card. For example, the card shown in Figure 14, would be used to execute the sort program SORTTEST, located on the Job file:

Co1- umn:	6	16	21
	MON\$\$	EXEQ	SORTTEST, MJB

Figure 14. Example of Monitor Execute Card for a Sort Program

Normally the sort or merge is executed as a program separate from the preceding and following programs within the same job. If, however, it is desired to retain information in core storage from one program to the next, the programs must be relocated through the Linkage Loader as phases of one large program. One method of accomplishing this is shown in Figure 15.

The modules for the other programs must be on the `svt`, the `Go` file, or on the same library as the sort modules.

The end-of-sort exit (P33), described in "Program Modification," must be used to provide the link to the next program phase.

Col- umn:	6	16	21
	MON\$\$	EXEQ	SORTDEFINE
	(no name)	DSORT	parameters
		DUNIT	parameters
		:	
		:	
	MON\$\$	EXEQ	LINKLOAD
		PHASE	Program Name
		CALL	(Preceding program modules)
		:	
		CALL	
		INPUT	MW2
		PHASE	
		CALL	(Following program modules)
		CALL	
		etc.	

Figure 15. Relocation of Sort as a Program Phase

### Sort or Merge Output File Designation

The sort or merge program places in the Resident Monitor `IP1` field the address of the symbolic unit containing the output file. This provides communication to a subsequent phase or program within the same job unless an intervening phase or program alters the contents of the `IP1` field. To use the information placed in the `IP1` field by the sort program, the subsequent phase or program and all intervening phases and programs must be in absolute form on the `sof` or `Job` file, since execution of the Linkage Loader will destroy the contents of the `IP1` field. If the sort output unit is to provide input for a subsequent program, that program should move the contents of the five-digit `IP1` field to the symbolic unit field of the File Table.

### Unusual End of Program

During the execution of a sort or merge program, the contents of certain Resident Monitor fields (such as the `IP1` field) are altered through use of the routine at `MCR` (see the *System Monitor* publication for description). If the return is made to the error return address, the sort or merge program will unconditionally go to the `UEP` routine (see the *System Monitor* publication).

This is the only situation in which the `UEP` routine is used by the sort or merge program.

### Messages

The meanings of the messages that the program may produce during the operation of a sort or merge program are explained in this subsection.

Whenever action is required following a message, the program will enter a waiting loop. To assist the operator in analyzing the conditions that exist when a waiting loop occurs, the first five characters of each console printer (as well as `SPR`) message are a five-digit identification code. The digits of the identification code are as follows:

#### Ten-Thousands Position (High-order position)

The digit in this position indicates the condition that exists at the time the waiting loop and/or message occurs. It also specifies the types of action possible.

- 0 Indicates a "cannot proceed" condition (equivalent to a "dead-end halt" condition in a program outside the Operating System). The program will indicate to the Resident Monitor that, unless the programs are in `TEST` mode, subsequent programs within the same job should not be executed and the System Monitor should skip to the next job. Processing does not stop and no waiting loop is entered.
- 1 Indicates an occurrence of possible significance, such as the commencement or conclusion of a particular portion of the program. The message is primarily of diagnostic value and appears only on the `SPR`. It is not accompanied by a waiting loop.
- 2 Indicates an "await-action" condition, and a waiting loop is provided. Messages appear on both the console printer and the `SPR`. Only one course of action per message can be followed by the operator to continue the program. The operator also has the option of terminating the program.
- 3 Indicates an "await-action" condition, and a waiting loop is provided. Messages appear on both the console printer and the `SPR`. Two courses of action are possible to continue the program. The operator also has the option of terminating the program.

#### Thousands Position

This will always be a zero.

#### Hundreds Position

This will always be a three, indicating a sort or merge program message and/or a waiting loop.

#### Tens Position

The tens position contains the number of the phase in which the message occurs, as follows:

- 0 General Assignment
- 1 Phase 1
- 2 Phase 2
- 3 Phase 3 or merge program

## Units Position

The units position contains an arbitrarily assigned number that differentiates the various conditions having identification codes that start with the same four digits.

### MESSAGES, EXPLANATION, AND ACTION

- 00301 *Console:* 00301  
*SPR:* 00301- SORT (or MERGE) DELETED DUE TO ERROR IN CONTROL DATA . . . (specific error) . . .  
*Explanation:* The control card diagnostic routine has detected an uncorrectable error in the control data supplied by the user. The specific error is indicated in the SPR message.  
*Action:* No operator action possible. User must correct the control card in error and re-execute the program.
- 00302 *Console:* 00302  
*SPR:* 00302- INVALID CARD TYPE . . . (card in question) . . .  
*Explanation:* The card-type field of the designated control card (printed in its entirety) does not designate a valid card type.  
*Action:* No operator action possible. User must correct the card in error and re-execute the program.
- 00303 *Console:* 00303  
*SPR:* 00303- PARAMETER NOT FOUND . . . (card in question) . . .  
*Explanation:* A parameter label on the designated control card (printed in its entirety) is not a valid name and the control information cannot be properly set up for the sort or merge.  
*Action:* No operator action possible. User must correct the control card in error and re-execute the program.
- 00304 *Console:* 00304  
*SPR:* 00304- INVALID PARAMETER . . . (card in question) . . .  
*Explanation:* One of the parameter fields on the designated control card (printed in its entirety) is in error and the control information cannot be properly set up for the sort or merge.  
*Action:* No operator action possible. User must correct the control card in error and re-execute the program.
- 00305 *Console:* 00305  
*SPR:* 00305- PARAMETER FIELD TOO LONG . . . (card in question) . . .  
*Explanation:* One of the parameter fields on the designated control card (printed in its entirety) is longer than permissible and cannot be processed by the sort or merge.  
*Action:* No operator action possible. User must correct the control card in error and re-execute the program.
- 00306 *Console:* 00306  
*SPR:* 00306- REQUIRED STORAGE GREATER THAN AVAILABLE STORAGE PHASE P  
*Explanation:* The core-storage requirements for the sort during Phase P (P will be 1, 2, or 3), as computed by the General Assignment routine, are greater than the amount of storage determined to be available.  
*Action:* No operator action possible. The user must reduce the size of routines sharing core storage with Phase P, or reduce the core-storage requirements of the sort by reducing the merge order, input block size, or output block size. He must then re-execute the program.
- 00311 *Console:* 00311  
*SPR:* 00311- INSUFFICIENT CORE STORAGE, PHASE 1  
*Explanation:* The amount of core storage actually available for the sort during Phase 1 is less than the amount required for execution.  
*Action:* No operator action possible. The user must reduce the size of routines sharing core storage with Phase 1, or reduce the Phase 1 core-storage requirements by reducing the input block length. He must then re-execute the program.
- 00312 *Console:* 00312  
*SPR:* 00312- XXXXXXXX RCDS IN, EOF PHI OUTPUT  
*Explanation:* All Phase 1 output merge file tapes have been filled with records and have reached end of reel before all of the input file has been processed. XXXXXXXX records have been read and introduced to the sort. It is possible for this number to exceed the number of records written, by a maximum of  $G + B - 1$ .  
*Action:* No operator action possible. The user must reduce the file size, or increase sort capacity by increasing the merge order, and re-execute the program.
- 00313 *Console:* 00313  
*SPR:* 00313- INSUFFICIENT TAPE UNITS ASSIGNED  
*Explanation:* In opening the tape units on the first merge file, it has been determined that the number of physical units assigned is less than the merge order specified.  
*Action:* No operator action possible. The user must re-execute the sort with as many physical units assigned to each merge file as the merge order specified, or, with the specified merge order reduced.
- 00321 *Console:* 00321  
*SPR:* 00321- INSUFFICIENT CORE STORAGE, PHASE 2  
*Explanation:* The amount of core storage actually available for the sort during Phase 2 is less than the amount required for execution.  
*Action:* No operator action possible. The user must reduce the size of the routines sharing core storage with Phase 2, or reduce the Phase 2 core-storage requirements by reducing the merge order, and re-execute the program.
- 00322 *Console:* 00322  
*SPR:* 00322- UNENDING MERGE, FILE SIZE TOO LARGE  
*Explanation:* Phase 2 of the sort has completed two successive passes without being able to reduce the number of sequences produced.  
*Action:* No operator action possible. The user must reduce the file size, or increase sort capacity by increasing the size of available core storage or the merge order, and re-execute the program.
- 00323 *Console:* 00323  
*SPR:* 00323- INSUFFICIENT TAPE UNITS ASSIGNED  
*Explanation:* In opening the tape units on one of the merge files, it has been determined that the number of physical units assigned is less than the merge order specified for that file.  
*Action:* No operator action possible. The user must re-execute the sort with as many physical units assigned to each merge file as the merge order specified for that file, or with the specified merge order reduced.

- 00324 *Console:* 00324  
*SPR:* 00324- XXXXXXXX RCDS OUT, EOF ON OUTPUT  
*Explanation:* During a pass of Phase 2, all merge file output tapes have been filled with records and reached end of reel before the complete file has been written. XXXXXXXX records have been written.  
*Action:* No operator action possible. The user must reduce the file size, or increase the sort capacity by increasing the merge order, and re-execute the program.
- 00331 *Console:* 00331  
*SPR:* 00331- INSUFFICIENT CORE STORAGE, PHASE 3  
*Explanation:* The amount of core storage actually available for the sort during Phase 3, or for the merge program, is less than the amount required for execution.  
*Action:* No operator action possible. The user must reduce the size of the routines sharing core storage with Phase 3 (or the merge), or reduce the core-storage requirements by reducing the merge order, and re-execute the program.
- 00332 *Console:* 00332  
*SPR:* 00332- OUT OF SEQUENCE  
*Explanation:* A record has been found to be out of sequence in the Phase 3 or merge output.  
*Action:* No operator action possible. An out-of-sequence condition is usually indicative of operational failure or invalid input.
- 00333 *Console:* 00333  
*SPR:* 00333- INSUFFICIENT TAPE UNITS ASSIGNED  
*Explanation:* In opening the tape units on one of the merge files (for a sort only), it has been determined that the number of physical units assigned is less than the merge order specified for that file.  
*Action:* Re-execute the sort with as many physical units assigned to each merge file as the merge order specified for that file, or with the specified merge order reduced.
- 00334 *Console:* 00334- NO DATA ON XXX  
*SPR:* None  
*Explanation:* XXX is the x-control field for the merge unit. In opening the tape units for one of the input files (for a merge only), it has been determined that the unit specified in the message has no data records.  
*Action:* No operator action possible. The user must re-assign the units, omitting the one with no data records, reduce the merge order, and re-execute the program.
- 10301 *Console:* None  
*SPR:* 10301- XXXXXXXX  
*Explanation:* Program identification message. XXXXXXXX is the eight-character identification field from the first sort control card.  
*Action:* None required.
- 10302 *Console:* None  
*SPR:* 10302- NMAX = XXXXXXXX G =XXXX (USER SPECIFIED) B = XXXX  
*Explanation:* General diagnostic message for a fixed-length sort, stating the estimated maximum file size possible (NMAX), the number of records that can be internally sorted at one time (G), and the sort blocking factor to be used (B). If the user has taken the option to specify B, "USER SPECIFIED" will appear in the message.  
*Action:* None required.
- 10303 *Console:* None  
*SPR:* 10303- NMAX = XXXXXXXX G = XXXX USER SPECIFIED BL = XXXX  
*Explanation:* General diagnostic message stating, for a
- variable-length sort, the estimated maximum file size possible (NMAX), the number of records that can be internally sorted at one time (G), and the maximum sort block length specified by the user (BL). This message will appear only if the user has specified a maximum sort block length.  
*Action:* None required.
- 10304 *Console:* None  
*SPR:* 10304- B SPECIFIED EXCEEDS STORAGE CAPACITY OF PHASE P WILL SUBSTITUTE B = XXXX  
*Explanation:* It has been determined that the B specified by the user for a fixed-length sort cannot be processed in Phase P (1, 2, or 3) due to core-storage limitations. The sort will substitute the B indicated.  
*Action:* None required.
- 10305 *Console:* None  
*SPR:* 10305- BL SPECIFIED EXCEEDS STORAGE CAPACITY OF PHASE P WILL SUBSTITUTE BL = XXXX  
*Explanation:* It has been determined that the maximum sort block length (BL) specified by the user, for a variable-length sort, cannot be processed in Phase P because of core-storage limitations. The sort will substitute the BL indicated.  
*Action:* None required.
- 10310 *Console:* 10310- XXXXX.YYYYYYY  
*SPR:* END PHASE 1, XXXXX SEQUENCES, YYYYYYY RCDS OUT  
*Explanation:* General diagnostic message at the completion of Phase 1 of the sort. XXXXX is the number of sequences produced and YYYYYYY is the total number of records processed during Phase 1. The console message will be issued only if the user has specified the CNSLMSG-Y parameter in the SORTTYPE control card; otherwise, no message will be written on the console.  
*Action:* None required.
- 10311 *Console:* None  
*SPR:* 10311- SKIP PHASE 2  
*Explanation:* The number of sequences produced by Phase 1 is less than or equal to the merge order. The final output sequence can be produced in one merge pass by Phase 3. Phase 2, therefore, will be bypassed.  
*Action:* None required.
- 10320 *Console:* None  
*SPR:* 10320- END PHASE 2  
*Explanation:* General diagnostic message at completion of Phase 2.  
*Action:* None required.
- 10321 *Console:* 10321- QQQ.XXXXX  
*SPR:* 10321- END PASS QQQ, XXXXX SEQUENCES OUT  
*Explanation:* General diagnostic message at the completion of each pass (Q) of Phase 2 of the sort. XXXXX is the number of sequences produced by the pass. The console message will be issued only if the user has specified the CNSLMSG-Y parameter in the SORTTYPE control card; otherwise, no message will be written on the console.  
*Action:* None required.
- 10330 *Console:* 10330- XXXXXXXX.YYYY.ZZZZ  
*SPR:* 10330- HI PAD ADD TTTT LO PAD ADD UUUU HI PAD DROP VVVV LO PAD DROP WWWW TOTAL RCDS XXXXXXXX INCL YYYY HI PAD ZZZZ LO PAD END SORT (MERGE)  
*Explanation:* The sort or merge has been completed. The record and padding counts have been recapitulated as follows:

- TTTT high padding records have been added.  
 UUUU low padding records have been added.  
 VVVV high padding records have been dropped.  
 WWWW low padding records have been dropped.  
 XXXXXXX records have been written on the output file.  
 YYYY high padding records are included in the output.  
 ZZZZ low padding records are included in the output.  
 The console message will be issued only if the user has specified the CNSLMSG-Y parameter in the SORTTYPE control card; otherwise, no message will be written on the console.  
*Action:* None required.
- 10331 *Console:* 10331- OUTPUT CU  
*SPR:* None  
*Explanation:* "C" is the channel and "U" the unit of the first output reel.  
*Action:* None required.
- 20301 *Console:* 20301- . . . (Field) . . . (Assumed Value) . . .  
*SPR:* 20301- SORT (MERGE) CONTROL INFORMATION CHANGED IF RUN GOES . . . (specific error) . . .  
*Explanation:* The control card diagnostic routine has detected an error or inconsistency in the control data supplied by the user as indicated in the SPR message. If the option to continue the sort or merge is taken, the field indicated in the console message will be altered to the assumed value shown in the console message.  
*Action:* Press INQUIRY REQUEST, then type:  
 \$31 — to accept the assumed value and continue execution.  
 \$32 — to reject the assumed value and cause the sort or merge to terminate as with a "cannot proceed" condition.  
 Press INQUIRY RELEASE. The typing of any other units digit will not break the waiting loop.
- 20302 *Console:* 20302- N GREATER THAN NMAX  
*SPR:* 20302- N GREATER THAN NMAX  
*Explanation:* The file size specified by the user is greater than the estimated maximum. If execution is continued, successful completion of the sort may be reached but cannot be guaranteed.  
*Action:* Press INQUIRY REQUEST, then type:  
 \$31 — to continue with the sort.  
 \$32 — to cause the sort to terminate as with a "cannot proceed" condition.  
 Press INQUIRY RELEASE. The typing of any other units digit will not break the waiting loop.
- 20303 *Console:* 20303- REELCNT  
*SPR:* None  
*Explanation:* Control card information (REELCNT-99) indicated that the exact number of input reels are to be specified during execution of the sort program. The operator must now enter the number of reels to be sorted.  
*Action:* Press INQUIRY REQUEST, then type:  
 \$31nn — where nn is the number of input reels to be sorted.  
 Press INQUIRY RELEASE.
- 20311 *Console:* 20311- XXXXXXXX.YYYYYYY  
*SPR:* 20311- XXXXXXXX IN YYYYYYY OUT.  
 RECORD COUNT OFF  
*Explanation:* In reconciling the Phase 1 record count (YYYYYYY) against the file size specified by the user (XXXXXXX), the counts were found to be unequal. This may be due to an incorrect file size being specified, operational failure, or the skipping of unreadable tape records when the SKIP option has been specified to the IOCS.  
*Action:* Press INQUIRY REQUEST, then type:  
 \$31 — to accept the new record count (YYYYYYY) and continue processing.  
 \$32 — to cause the sort to terminate as with a "cannot proceed" condition.  
 Press INQUIRY RELEASE. The typing of any other units digit will not break the waiting loop.
- 20321 *Console:* 20321- XXXXXXXX.YYYYYYY  
*SPR:* 20321- XXXXXXXX IN YYYYYYY OUT.  
 RECORD COUNT OFF  
*Explanation:* In reconciling the record count at the end of a Phase 2 pass, the output count (YYYYYYY) was found to be unequal to the input count (XXXXXXX). This may be due to operational failure or the skipping of unreadable tape records when the SKIP option has been specified to the IOCS.  
*Action:* Press INQUIRY REQUEST, then type:  
 \$31 — to accept the new record count (YYYYYYY) and continue processing.  
 \$32 — to cause the sort to terminate as with a "cannot proceed" condition.  
 Press INQUIRY RELEASE. The typing of any other units digit will not break the waiting loop.
- 20331 *Console:* 20331- XXXXXXXX.YYYYYYY  
*SPR:* 20331- XXXXXXXX IN YYYYYYY OUT.  
 RECORD CNT OFF  
*Explanation:* In reconciling the record count at the end of Phase 3 or a merge program, the output count (YYYYYYY) was found to be unequal to the input count (XXXXXXX). This may be due to an incorrect input file size being specified for the merge, operational failure, or the skipping of unreadable tape records when the SKIP option has been specified to the IOCS.  
*Action:* Press INQUIRY REQUEST, then type:  
 \$31 — to accept the new record count and continue processing.  
 \$32 — to cause the sort or merge to terminate as with a "cannot proceed" condition.  
 Press INQUIRY RELEASE. The typing of any other units digit will not break the waiting loop.
- 30301 *Console:* 30301- . . . (Columns 16-20 of the card) . . .  
*SPR:* 30301- NOT SORT CONTROL CARD . . . (card in question) . . .  
*Explanation:* A card, read by the control card reading routine, does not contain the identification SORTb in columns 16-20.  
*Action:* Press INQUIRY REQUEST, then type:  
 \$31 — to accept the card in question, and attempt to process it.  
 \$32 — to reject the card and cause the sort or merge to terminate as with a "cannot proceed" condition.  
 \$33 — to bypass the card and attempt to continue execution of the program.  
 Press INQUIRY RELEASE. The typing of any other units digit will not break the waiting loop.

## Program Description

The following information on the Sort Definition program and the phases of the sort or merge programs created is provided to give the user a more detailed picture of the structure of these programs. This information is also necessary if user-written modification routines are to be included.

### The Sort Definition Program

The Sort Definition program selects, from the set of modules provided, those modules necessary to produce the sort or merge program specified by the Sort Definition (DSORT) control card. It also prepares the Linkage Loader load cards that specify the symbolic units to be used by the sort or merge program, and indicate the type of program defined. The Monitor, upon reading an EXEQ (execute) card specifying the Sort Definition program, will load and execute the program.

Input to the Sort Definition program consists of the Sort Definition control cards and user routines to be added. The operational procedures are as follows:

1. The program reads the first card and scans it for its parameters.
2. The parameters, upon being identified, cause the setting or resetting of indicators in the program. These are preset to signify a fixed-length sort program with multiple control fields and without modifications (these parameters will be assumed if no parameters to the contrary are entered).
3. A table lookup is performed against the indicator set to find a key for the list of all necessary PHASE, BASE and CALLN statements to be included for the defined sort or merge program. (If user routines are to be included, a check is made before the writing of each statement on symbolic unit MW2 to see if the added routines should be included at that point. If they should, the cards on the SIU for the added routines are copied onto MW2.)
4. When the program completes the definition of a sort or merge program, it looks for the next pair of control cards on the SIU. If none is found, control is returned to the Monitor.

The Sort Definition program consists of the single module IBSRTDEFIN.

### Phases of the Sort or Merge Programs

The sort programs produced, each "built" from several modules, are each divided into four phases. These are known as the *General Assignment Phase*, *Phase 1*, *Phase 2* and *Phase 3*. Merge programs consist of only the General Assignment Phase and Phase 3. Each phase will perform a specific function for the sort or merge program produced.

Figure 16 shows the modules that may be used for each phase in the sort/merge program(s) produced. Certain modules may be included and their alternates excluded, depending on the nature of the program desired and the data to be processed; i. e., the program may be a sort or merge program, the data may be of fixed- or variable-length, and there may be single or multiple control data fields.

#### General Assignment Phase

The General Assignment Phase does the initial house-keeping for the sort or merge program. This phase reserves the Sort Common area used by all phases of the sort. This area, which exists in core storage during the entire program, is then initialized with predetermined constants, and word marks are placed in the proper locations. The user's control cards are read, and the Common is further set up according to this data. Information in Common is checked for both validity and consistency. In a sort program, the last function of the General Assignment Phase is the calculation of B (sort blocking factor) and G (internal sort size) from the information in Common. Purpose of the B and G calculation is to optimize the sort with respect to both core storage and running time.

When these functions have been completed, the next phase is called in; this will be Phase 1 for a sort, or Phase 3 for a merge.

The modules that can be used by the General Assignment Phase are: COMAN, PRIME, CILCD, GASSB, GASM3, and DUM00.

#### Phase 1

Phase 1 performs the initial sorting of the input file. This phase consists of two parts: the assignment program and the running program. Functions of each of these parts are described below.



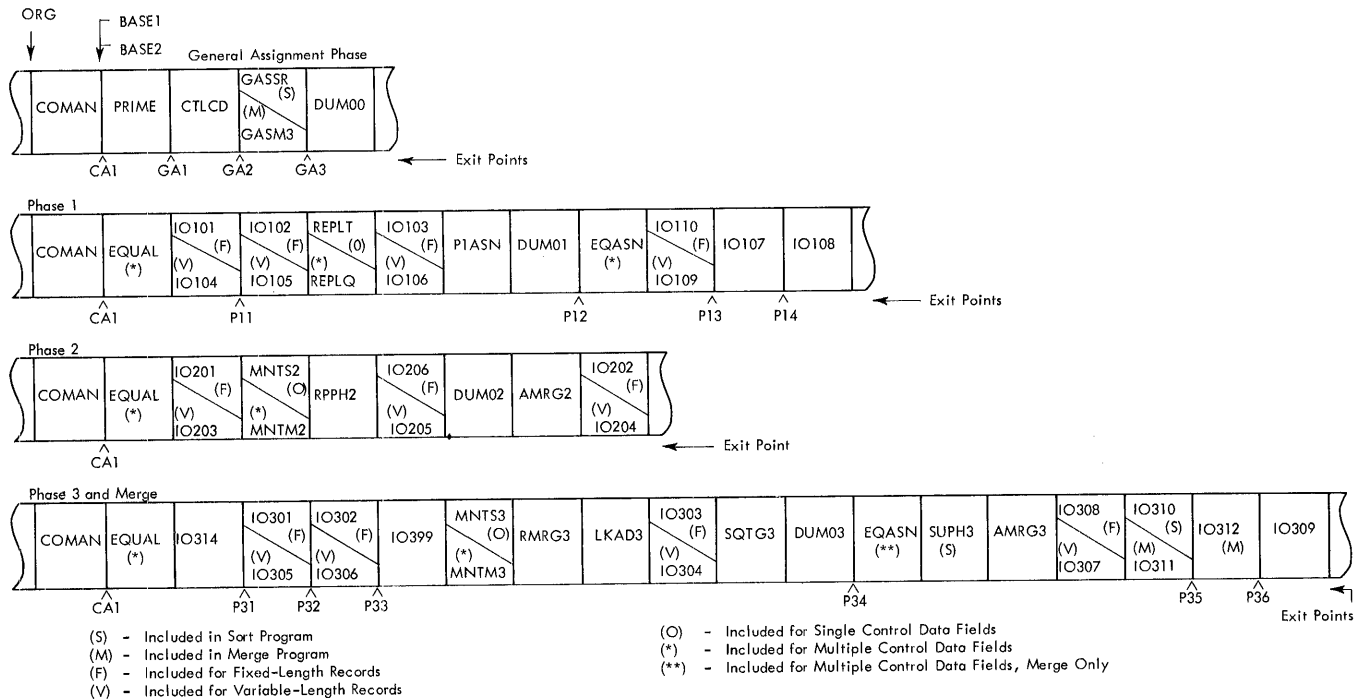


Figure 16. IBM 1410/7010 Tape Sort Memory Map, Showing the Modules That May Be Used in Each Phase

#### ASSIGNMENT PROGRAM

The Phase 1 assignment program performs the final initialization and modification of the running program to achieve optimum operating efficiency. The following functions are performed:

1. If multiple control fields have been specified, the compare instructions for the minor control data fields are initialized.
2. The replacement routine is modified in accordance with the nature of the sort (ascending or descending).
3. The size of the *Record Storage Area* is determined and the addresses of the input and output areas are established.
4. A check for sufficient core-storage space is made.
5. The location of the major control data field of the data records is placed in the replacement routine compare instructions.
6. The input and output File Tables and iorw's are created, and the input area is initialized.
7. The Record Storage Area is initialized and tags are assigned.

The modules that can be used by the Phase 1 assignment program are: IO103, IO106, PLASN, DUM01, EQASM, IO109, IO110, IO107, and IO108.

#### RUNNING PROGRAM

The running program portion of Phase 1 performs the internal sorting required to produce a set of ordered sequences that will subsequently be merged by Phase 2 or 3. The replacement type of internal sort is used. This produces maximum sequence lengths for a given amount of available core storage.

The replacement sort determines the lowest record in the Record Storage Area, moves it to the output area and replaces it with a new record from the input area. When no records in the Record Storage Area will fit in the current sequence, a new sequence is started.

The running program places the ordered sequences on the m output tapes (m is the merge order) of the first merge file. At each end of sequence the output address is stepped to the next output tape unit, so that the output sequences are evenly distributed among the m tapes. At the end of Phase 1, a test is made to see if there were more than m sequences produced. If so, Phase 2 is loaded; otherwise Phase 3 is loaded.

The modules that may be used by the Phase 1 running program are: COMAN, EQUAL, IO101, IO104, IO102, IO105, REPLQ, and REPLT.

## Phase 2

Phase 2 merges the output sequences from Phase 1 until the number of sequences is less than or equal to the merge order. (When the merge is unbalanced, the number of sequences must be equal to or less than the merge order of the pass just completed.) At this point control is passed to Phase 3. Like Phase 1, this phase consists of an assignment program and a running program.

### ASSIGNMENT PROGRAM

The Phase 2 assignment program does the following:

1. It determines the sizes and locations of the input and output areas. The program will first attempt to set up  $2m$  input areas so that there will be an input area and an alternate area for each unit in the input merge file. This will allow full overlap of input with processing. If there is insufficient core-storage space for  $2m$  areas, the assignment program will try  $m + 1$  areas, allowing the overlapping of input with processing, using the additional area. This overlapping will be accomplished by using a Look Ahead routine (see below). If necessary, the number of areas will be reduced to  $m$  and no overlap of input with processing will be possible.

2. The compare instructions in the Phase 2 running program are initialized with the relative location of the major control data field.

3. If a descending sort has been specified, the Phase 2 running program is set up accordingly.

4. The running program is set up for the specified merge order and, if applicable, the Look Ahead routine (see below) is set up to process  $m + 1$  input areas.

5. The input/output routine is set up for the number of input areas necessary, and the *iorw*'s and file tables are generated.

6. The input and output areas are cleared, and control is given to the Phase 2 running program.

The modules which may be used by the Phase 2 assignment are: *io205*, *io206*, *DUM02*, *AMRG2*, *io202*, and *io204*.

### RUNNING PROGRAM

The Phase 2 running program is used in a balanced merge to perform one or more two- to five-way merge passes until the number of sequences is less than or equal to the merge order. For an unbalanced merge, the program performs one or more one- to five-way merge passes until the number of sequences is equal to or less than the merge order of the completed pass. The merge network itself for a balanced merge is a two- to five-way tag shift merge (one- to five-way for an unbalanced merge) utilizing the index registers as the tag work areas.

During the Phase 2 running program, the Look Ahead routine, set up by the assignment program if the latter had ascertained that  $m + 1$  input areas should be used, examines the last record of the input block from each unit in the input merge file to determine which of these last records is the lowest. The block containing this record will be the first to have all its records merged into the resulting output sequence; therefore, the alternate input area will be filled (during processing of the other input areas) with a block from the unit in the input merge file that had supplied the "first-to-empty" block.

At the beginning of each pass, the  $m$  tapes are read and the first sequences from each tape are merged. At the end of sequence (or end of file) on each input tape, a "stepdown" condition occurs, resulting in the reduction of the merge order by one. This continues until the merge order becomes zero; at that time the network is reinitialized. If all input tapes are at end of file, the next pass or next phase is started.

The modules which may be used by the Phase 2 running program are: *COMAN*, *EQUAL*, *io201*, *io203*, *MNTS2*, *MNTM2*, and *RPPH2*.

## Phase 3 and the Merge

Phase 3 performs the final two- to five-way merge pass for the sort and produces an output file in the format specified by the user. This phase is written in such a way that it can be used as a merge program. When so used, the program will perform a maximum of an eight-way merge. A basic description of the assignment program and the running program follows.

### ASSIGNMENT PROGRAM

The assignment function for a sort differs somewhat from that for a merge. When operating as a merge program, Phase 3 sets up the input areas and performs other initialization, using the information read from control cards by the general assignment phase. If a sort is indicated, certain constants are set to make the running program operate as Phase 3 of the sort. In addition, some File Table Extensions are unnecessary in the sort; therefore, their length is not considered in the total Phase 3 size calculation. In either case, the necessary assignment functions for the merge network are performed and constants are set up for the input/output routines. As with Phase 2,  $m$ ,  $m + 1$ , or  $2m$  input areas may be established. Following this, housekeeping functions are performed, including clearing input and output areas, setting up of File Tables and *iorw*'s, opening of input and output files, etc. When all housekeeping functions have been completed, control is passed to the running program.

The modules that may be used by the Phase 3 assignment program are: *io303*, *io304*, *sortc3*, *DUM03*,

| EQASN, SUPH3, AMRG3, IO307, IO308, IO310, IO311, IO312, and IO309.

#### RUNNING PROGRAM FOR A SORT

The Phase 3 running program, when used as part of a sort, performs the final merge pass. The maximum merge order is five, and the minimum is one. The actual merge order used is equal to the number of sequences written during the last pass of Phase 2. The merge network used in Phase 3 is similar to that used in Phase 2, but no reinitialization is necessary. As each input file reaches end of file, the merge order is reduced by one until it becomes zero; at that time

the sort is complete. An end-of-sort message is printed and control is returned to the System Monitor.

#### RUNNING PROGRAM FOR A MERGE

When Phase 3 operates as a merge program, the maximum merge order is eight and the minimum is one. The merge order is taken from the control card information rather than from Phase 1 or 2. Aside from the above differences, the running program operates the same way for a merge as it does for a sort.

The modules which may be used for the sort or merge are: COMAN, EQUAL, IO314, IO301, IO305, IO302, | IO306, LO399, MNTS3, MNTM3, and RMRG3.

# Program Modification

## General Information

Modifications to the sort or merge programs should be made only after careful system analysis indicates that this course of action is more economical than other ways of achieving the desired result. Among the alternative procedures that the user should investigate are providing the desired function in another program in the system, or writing a special pre-edit or post-edit program to provide the function. Some factors to be considered before modifying the programs are:

1. Processing routines added to the programs must, in most cases, include instructions to save and restore index registers.
2. The reservation of core storage for added programming, particularly in a system with 40,000 core-storage positions, may restrict the normal assignment of data areas to the extent that additional Phase 2 merging passes must be executed in order to complete an application.
3. Other programs in the system may be more readily modified, as well as being better known to the programmer.

However, it will be desirable in certain applications to add modifications to the sort and merge programs. To simplify the added programming required for such cases, exits have been provided in Phases 1 and 3 of the sort and in the merge program as well as in the General Assignment Phase. The user can activate exits by specifying to the Sort Definition program that modification is to be made to the program being defined, and by providing the program with the routines or CALL statements desired.

Various fields within the program's Sort Common area, and in certain modules of the program itself, are available for reference by the modification routines. Since all reference can be made through the use of specified linkage symbols, the need for consulting program listings is eliminated. In addition, since the programs are operating in a relocatable environment and are loaded through use of the Linkage Loader, once modification routines have been programmed and tested satisfactorily, they need never be reassembled, even though a subsequent reassembly of sort or merge modules becomes necessary. The tested modification routines will run properly in any new version of the sort or merge program.

Added programming, at each of the exits provided, is relocated by the Linkage Loader as open routines at the appropriate logical points in the program. Therefore, there is no problem of determining and specifying the exact location for the added programming. The added programming becomes, in effect, an integral part of the program when it is relocated and converted to absolute form.

## General Procedure

### Inclusion of Added Programming

Each routine to be included with a sort or merge program should normally be compiled as a separate program phase with an origin at 00000. If more than one routine is to be placed at the same exit point, the user, by compiling the routines as one large routine or phase, can obviate the need for including his own linkage symbols for intercommunication between the routines. All modification routines should be written as Autocoder subprograms with no operand specified in the END card.

Added programming is included with the sort or merge program at Sort Definition. This is accomplished as follows:

1. The MOD parameter is specified on the DSORT control card.
2. The material to be added is then provided to the Sort Definition program; this can be accomplished in two ways:
  - a. The actual module (routine) to be added is placed in relocatable form on the SIU, immediately following the DSORT and DUNIT cards.
  - b. If the module to be included is on the Go file or in the same relocatable library as the sort modules, a Linkage Loader CALL card with the name of the module desired is placed on the SIU immediately following the DSORT and DUNIT cards.

In either case, the user indicates to the Sort Definition program the location at which the material is to be added by punching the Exit Identifier in columns 1 through 3 of the TITLE card of the user's added programming module on the SIU, or of the CALL card. Any number of modifications can be added at each exit point. The material must, however, be added in the order in which the EXIT points appear, as described later in this section.

3. Having recognized the MOD parameter, the Sort Definition program will look for the first added programming card on the sru. From this it will determine where the material is to be added. As the Sort Definition program generates the Linkage Loader input statements, it will check each exit point until the one specified is reached. It will then copy cards from the sru to mw2 until either the next TITLE or CALL card is recognized, a DSORT or DUNIT card is reached, or an end of file is signalled by the System Monitor. Each subsequent modification will be placed in its proper location. If a modification is included out of sequence, that modification, and modifications subsequent to it on the sru, may not be added.

4. When the file produced on mw2 is processed by the Linkage Loader, the added programming is included as an integral part of the absolute program. All linkage symbol references between modifications and the program modules will be resolved.

As an example, assume that the user desires to add two routines at exit point GA2, following the reading of the control cards in the general assignment routine. The routines have already been compiled and are in relocatable form. Assume also that a modification has been compiled by a preceding Autocoder run and is located on the Go file. This modification is to be placed at exit point P33, before the sort or merge end-of-program routine. The cards shown in Figure 17 would be used in the sru.

NOTE: The "5" in column 72 of the TITLE cards in Figure 17 is a card type indicator inserted by the Autocoder processor.

Col-					
umn: 1	6	16	21		72
	MON\$\$	EXEQ	SORTDEFINE		
	SORTNAME	DSORT	MOD		
		DUNIT	MR1,MR2,MR3		
GA2		TITLE	ASSGNMOD1		5
		:			
		:			
		relocatable deck			
		:			
GA2		TITLE	ASSGNMOD2		5
		relocatable deck			
		:			
		:			
P33		CALL	EOPMOD		
	MON\$\$	EXEQ	LINKLOAD		
		INPUT	MW2		
	MON\$\$	EXEQ	SORTNAME		
		etc.			

Figure 17. Example of Inclusion of Added Programming

### Execution of Added Programming

With the exception of user routines at the first exit point (CA1), added programming is executed as in-line coding. The instructions preceding will "fall through" to the modification, which in turn may "fall through" to the instructions following. The need for entry and exit branches is therefore eliminated. For some exit points, additional return points are provided through certain linkage symbols. These are specified in the descriptions of the individual exit points. Figure 18 summarizes the locations and suggested uses of the various exit points. See "Exit Point Descriptions" for detailed explanations.

Summary of Exit Points	
Exit Point	Description
CA1	If activated, located two positions immediately above the Sort Common area throughout the execution of the sort or merge. Has no entry from the program. Can be used for constants and routines shared by other exit points. For example, IOCS exit routines would most likely be placed in this area.
GA1	If activated, located in the general assignment routine of the sort or merge program. Occurs after initialization of the Sort Common and prior to execution of the control card reading routine. Entered once during the program. Suggested function of user-written routines: modifying or supplying control information.
GA2	If activated, located in the general assignment routine of the sort or merge program. Occurs after the reading of control cards, and setting up of the Sort Common, and prior to the checking of the control information for validity and consistency. Entered once during the program. Suggested function of user-written routines: modifying or supplying control information.
GA3	If activated, located in the general assignment routine of the sort or merge program. Occurs after the completion of the general assignment routine and just prior to the linking to Phase 1 of the sort or merge program. Entered once during the program. Suggested type of user-written routines: user's assignment routines.
P11	If activated, located in Phase 1 of the sort program throughout the execution of the phase. Occurs at the point in the running program where each input record is to be moved to the Record Storage Area from the input area. Entered for each input record. Suggested functions of user-written routines: performing record addition, deletion or modification.
P12	If activated, located in Phase 1 of the sort program during the assignment portion only. Occurs prior to the execution of any of the Phase 1 assignment routines. Entered once during the program. Suggested type of user-written routines: user's assignment routines.
P13	If activated, located in Phase 1 of the sort program during the assignment portion only. Occurs at the point of setting up the File Table and IORW's for the input file. Entered once during the program. Suggested function of user-written routines: modification of File Tables, tape-label File Table Extensions, and IORW's for the input file.

Summary of Exit Points	
Exit Point	Description
P14	If activated, located in Phase 1 of the sort program during the assignment portion only. Occurs at the point of the setting up of the File Tables and IORW's for the merge files. Entered once during the program. Suggested functions of user-written routines: modification of File Tables, tape-label File Table Extensions, and IORW's for the merge file.
P31	If activated, located in Phase 3 and the merge program throughout execution of the phase. Occurs at the point in the running program where each record leaves the merge network. Entered once per record (except for the first record). Suggested function of user-written routines: summarization of records.
P32	If activated, located in Phase 3 and the merge program throughout the execution of the phase. Occurs prior to the moving of each data record to the output area. Entered once per output record. Suggested functions of user-written routines: addition, deletion or modification of records.
P33	If activated, located in Phase 3 and the merge program throughout the execution of the phase. Occurs at the end of the program, just prior to linking to the System Monitor to execute the next program. Entered once during the program. Suggested type of user-written routines: user end-of-program routines.
P34	If activated, located in Phase 3 and the merge program during the assignment program only. Occurs prior to the execution of any of the Phase 3 or the merge program assignment routines. Entered once during the program. Suggested type of user-written routines: assignment routines.
P35	If activated, located in the merge program during the assignment program only. Occurs when the File Table and IORW's are set up for each input file. Entered once per input file. Suggested function of the user-written routines: modification of File Tables, tape-label File Table Extensions, and IORW's, for the merge program input file.
P36	If activated, located in Phase 3 and the merge program during the assignment program only. Occurs when the File Table and IORW for the final output file are set up. Entered once. Suggested function for user-written routines: modification of the output File Table Extensions, and IORW for the output file.

NOTE: The location of the exit points is illustrated in the memory map shown in Figure 16, in the "Program Description" section.

Figure 18. Summary of Exit Points

## Information on Implementation

### Storage Requirements

To determine the amount of core storage available for added programming, the following factors must be considered:

1. Amount of core storage needed for the Resident Monitor and the iocs.
2. Amount of core storage needed for Tele-processing routines, if present.
3. Amount of core storage needed for user routines used in conjunction with 1 and 2 above.
4. Amount of core storage needed for the sort or merge program and for record storage.

The size of the first three factors must be deter-

mined by the user for the system with which he is operating. The core-storage requirements for the sort or merge programs are shown in Figure 19. By computing the total system core-storage requirements (including record storage), and subtracting this sum from the total amount of core storage available in the computer system, the user can determine the approximate amount of core storage available for added programming.

### Index Register Conventions

In all cases the user must adhere to basic index register conventions established for the Operating System. These are described in detail in the *System Monitor*

Phase or Subphase	Exit Points in Core Storage	Core Storage Required for a Sort or Merge*
General Assignment	CA1, GA1, GA2, GA3	16,000 positions
Phase 1 Assignment	CA1, P11, P12, P13, P14	8,500 positions
Phase 1 Running Program	CA1, P11	3,800 + IRL + 4DRL positions without input-process overlap. 3,800 + 2IRL + 4DRL positions if input-process overlap desired.
Phase 2 Assignment	CA1	9,500 positions
Phase 2 Running Program	CA1	6,000 + (M + 2)DRL positions without input-process overlap. 6,000 + (2M + 2)DRL positions if input-process overlap desired.
Phase 3 and Merge Program Assignment	CA1, P31, P32, P33, P34, P35, P36	13,000 positions.
Phase 3 and the Merge Running Program	CA1, P31, P32, P33	5,000 + M(DRL) + 2ORL positions without input-processing overlap. 5,000 + 2M(DRL) + 2ORL positions if input-process overlap desired.
IRL = Input tape-record length DRL = Sort data-record length M = Merge order ORL = Output tape-record length  NOTE: The above formulas allow for a minimum sort only, with a sort blocking factor of 1, an internal sort size (G) of two records, and a single control data field. Approximately 400 additional positions will be required in each of Phases 1, 2, and 3 if multiple control data fields are specified.  * The General Assignment Phase, and Phases 1, 2 and 3 are used for a sort program. A merge program uses only the Generalized Assignment Phase and Phase 3.		

Figure 19. Sort or Merge Program Core-Storage Requirements

publication. Briefly, the conventions include the following:

1. Word marks are contained in the high-order position of each index register. Dependent programs must not clear or set word marks in the index registers.
2. Group marks must not be placed in the high-order position of any index register.
3. Index registers 14 and 15 must not be used by dependent programs.
4. Index register 13 may be utilized by user programs but the contents will not be saved by programs in the system.
5. All index registers must be left unsigned or signed plus. If an index register is left signed minus by a user's program or by user modification at a prior exit, invalid addressing may result.

Throughout the execution of the sort or merge program, index registers 01 through 12 may be used by user modification routines. The contents of any index

register used, however, must be saved and restored prior to return to the sort or merge program, except for the cases specified in this manual in the description of each exit point. The user cannot expect the contents of index registers to be preserved, and should save any information in these registers that will be needed after the return to the main program from an exit point.

### Sort Common Area

To facilitate the communication of information from phase to phase, the sort or merge program, through use of the downward relocation feature provided by Autocoder and Linkage Loader (see the *System Monitor* publication), utilizes a common data area. Called Sort Common, this 534-character area is specified by a BASE2 statement in the first module of the program (IBSRTCOMAN). The area is initialized by the Sort Common priming routine (IBSRTPRIME) and set up by the control card reading routine (IBSRCTLCD). Contents of the area are checked for validity and consistency by the common area checking routine (IBSRGASSR for a sort program, or IBSRGASM3 for a merge program). The common area checking routine also establishes certain fields within the area.

The following description of the contents of Sort Common is provided to permit the user to bypass the control card reading routine, and through his own routines establish the Sort Common area himself. This is accomplished using assignment exit points GA1 and GA2. The description also indicates those fields which may be referenced by added programming during execution of the sort or merge. Methods of defining and referencing Sort Common by a module are described in the publication *IBM 1410/7010 Operating System; Autocoder*, Form C28-0326.

In the charts that accompany the descriptions of each field (Figures 20 through 26), the first column contains the number of the field. In the next column, the label used by the sort or merge program to reference the field is shown. The third column shows the type of operation used to set up the field. The fourth section indicates the number of positions in the field. The fifth section of the chart indicates whether the field is alphabetic or numeric. The last portion shows what positions (high-order to low-order) within the Sort Common the field occupies. Figure 20 contains this information for Fields 1 through 71.

*Field 1:* This field is set up by the Sort Definition program through use of a Linkage Loader load card. The bit configurations of the three characters reflect the type of program defined. Depending on the parameter alternatives selected, the characters in this field will be as follows:

- |                   |  |
|-------------------|--|
| First character:  | <ul style="list-style-type: none"> <li>a. A blank with a word mark if the CNSLMSG-Y parameter (for writing console messages for messages 10310, 10321, and 10330) has not been specified.</li> <li>b. A 1 (one) with a word mark if the CNSLMSG-Y parameter has been specified.</li> </ul> |
| Second character: | <ul style="list-style-type: none"> <li>a. Unzoned if the program is <i>unmodified</i>; zoned plus if the program is <i>modified</i>.</li> <li>b. Numeric portion a 1 if <i>one</i> control data field is specified; a 2 if <i>multiple</i> control data fields are specified.</li> </ul>   |
| Third character:  | <ul style="list-style-type: none"> <li>a. Unzoned if a <i>sort</i> program is specified; zoned plus if a <i>merge</i> program is specified.</li> <li>b. Numeric portion a 1 if the records are <i>variable-length</i>; 2 if the records are <i>fixed-length</i>.</li> </ul>                |

*Field 2:* Set up by the Sort Definition program through use of a Linkage Loader load card. It contains the symbolic unit name specifying the input file of a sort program or the output file of a merge program. The Linkage Loader converts the name to a five-digit address constant, and it is used in that form throughout the program. This address constant is put in the model File Table (see Sort Common fields 126 through 150) into the symbolic unit field prior to that file's being opened. For information on the function of this field, see "Unit Definition," in the "Program Definition" section.

*Field 3:* Set up by the Sort Definition program. The name of the second specified symbolic unit is placed in this field. At object time, the symbolic unit name has been converted to a five-digit address constant. For information on the function of this field, see "Unit Definition," in the "Program Definition" section.

*Field 4:* Set up by the Sort Definition program. The third specified symbolic unit name is placed in this field. If the unit is undefined, this field will be zero. A word mark is set in the high-order position by the common area checking routine. For information on the function of this field, see "Unit Definition," in the "Program Definition" section. If *siu* input is specified, this field is signed positive during the General Assignment Phase and remains positive through the Phase 1 assignment program (covering exits GA2, GA3 and P12).

*Field 5:* Set up by the Sort Definition program. The fourth specified symbolic unit name is placed in this field. If the unit is undefined, this field will be zero. A word mark is set as in Field 4. For information on the function of this field, see "Unit Definition," in the "Program Definition" section.

*Field 6:* Set up by the Sort Definition program. The fifth specified symbolic unit name is placed in this field. If the unit is undefined, this field will be zero. A word mark is set as in Field 4. For information on

the function of this field, see "Unit Definition," in the "Program Definition" section.

*Field 7:* Set up by the Sort Definition program. The sixth specified symbolic unit name is placed in this field. If the unit is undefined, this field will be zero. A word mark is set as in Field 4. For information on the function of this field, see "Unit Definition," in the "Program Definition" section.

*Field 8:* Set up by the Sort Definition program. The seventh specified symbolic unit name is placed in this field. If the unit is undefined, this field will be zero. A word mark is set as in Field 4. For information on the function of this field, see "Unit Definition," in the "Program Definition" section.

*Field 9:* Set up by the Sort Definition program. The eighth specified symbolic unit name is placed in this field. If the unit is undefined, this field will be zero. A word mark is set as in Field 4. For information on the function of this field, see "Unit Definition," in the "Program Definition" section.

*Field 10:* Set up by Sort Definition program. The ninth specified symbolic unit name is placed in this field. If the unit is undefined, this field will be zero. A word mark is set as in Field 4. For information on the function of this field, see "Unit Definition," in the "Program Definition" section.

*Field 11:* This field is initially set to zero. The sort control parameter value for RECLEN is placed here. This field thus contains the data-record length used throughout the sort or merge program for fixed-length records, or the maximum data-record length used throughout the program for variable-length records. In the case of a sort:

1. If the records (either fixed or variable in length) do not contain a record mark, Field 11 is incremented by one by the common area checking routine. This allows for the addition of the record mark during the sort.

2. If the records are variable-length and unblocked, with no Block Character-Count (Form 1), and there is no Record Character-Count specified, Field 11 is incremented by four. This allows for the inclusion of a Record Character-Count during the sort.

3. If the records are variable-length and unblocked, with a Block Character-Count (Form 3), and with either no Record Character-Count specified or with "unblocked output" among the specifications, Field 11 is incremented by four. This allows for the inclusion of a Record Character-Count during the sort.

The incrementing of Field 11, as described in "1" above, can be performed in addition to either the incrementing procedures described in "2" or those outlined in "3". For example, if the records are Form 1 variable-length records, without a record mark and



without a Record Character-Count specified, Field 11 will be incremented by five. Similarly, if the records are Form 3 variable-length records, with no record mark, and containing “unblocked output” among the specifications, Field 11 will be incremented by five.

*Field 12:* This field is initially set to zero. If the data-record length for input is to be altered by user modification, the *input* data-record length is placed in this field. This information is taken from the LENMODREC parameter on the INPUTFILE control card. If the input data-record length is unspecified, it will be assumed to be the same as the data-record length the user has specified in the SORTTYPE control cards, and Field 12 is filled in with that value. If the input for a sort consists of Form 1 or Form 3 variable-length records without a Record Character-Count, the contents of Field 12 will be incremented by four to allow for the addition of the Record Character-Count field.

*Field 13:* This field is initially set to zeros. If the data-record length for output is to be altered by user modification, this field contains the output data-record length specified by the LENMODREC parameter on the OUTPUTFILE control card. If the output data-record length is unspecified, it will be assumed to be the same as the data-record length the user has specified in the SORTTYPE control cards, and Field 13 is filled in with that value. If the input to a sort is unblocked without record marks, and the output is to include record marks, Field 13 is increased by one. If the input to a sort consists of Form 1 or Form 3 variable-length records without a Record Character-Count, the contents of Field 13 will be incremented by four to allow for the addition of the Record Character-Count field. For a merge, if the input is unblocked without a record mark, the contents of Field 13 are increased by one.

*Field 14:* This field is initially set to zeros. If the input records are fixed-length and blocked, this field contains the number of records per input block. If the input records are Form 1 or Form 3 fixed- or variable-length unblocked records, and do not contain record marks, this field contains 0000; if the records are Form 1 or Form 3 fixed- or variable-length unblocked records, and do contain record marks, this field contains 0001. For variable-length blocked input, this field is initialized to 0002 by the common area checking routine (to signify to the program that the output is to be blocked).

*Field 15:* This field is initially set to zeros. If the input records are variable-length and blocked, this field contains the maximum input block length. If the records are fixed-length, the input block length is computed and placed in this field by the common area checking routine. For a sort, if the input consists of Form 1 or Form 3 variable-length records without a

Record Character-Count, the contents of Field 15 will be incremented by four to allow for the addition of the Record Character-Count field.

*Field 16:* This field is initially set to zeros. If the output records are fixed-length and are to be blocked, this field contains the number of records per output block. If the output records are Form 1 or Form 3 fixed- or variable-length unblocked records, and do not contain record marks, this field contains 0000; if the records are Form 1 or Form 3 fixed- or variable-length unblocked records, and do contain record marks, this Sort Common field contains 0001. For variable-length blocked output, this field is initialized to 0002 by the common area checking routine.

*Field 17:* This field is initially set to zeros. If the output records are variable-length and are to be blocked, this field contains the maximum output block length. If the records are fixed-length, the output block length is computed and placed here by the common area checking routine. If the input for a sort consists of Form 1 or Form 3 variable-length records without a Record Character-Count, and unblocked output has been specified, the contents of Field 17 will be incremented by four to allow for the inclusion of the Record Character-Count field.

*Field 18:* This field is used only for a sort program. The numbers placed in this field can be computed by the sort either in accordance with entries in control cards or independently, or can be inserted at exit point GA3. If the records are fixed-length, the field contains the number of records per sort block. If the records are variable-length, the field contains a value greater than one.

*Field 19:* This field is used only for a sort program. It is set up in the same way as Field 18. If the records are variable-length, the field contains the maximum sort block length. If the records are fixed-length, the field contains the computed length of sort blocking times the *sort* data-record length.

*Field 20:* This field is used only for a sort program. It is computed by the common area checking routine from various factors upon which the sort is dependent, including available storage, sort blocking, etc. The field can also be set up by user-written modifications at exit point GA3. The internal sort factor (G) is contained in this field.

Zone bits over the thousands and hundreds positions of this field also have significance to the sort. Set up when G is computed, these bits indicate to Phases 1 and 2 of the sort program the available number of input areas for these phases. The thousands position has no zone bits if Phase 1 can use two input areas, and plus zoning (AB bit) if it can use only one input area. The hundreds position has no zone bits if Phase

2 can use  $2m$  input areas, plus zoning if Phase 2 can use  $m + 1$  input areas, and minus zoning (B bit) if Phase 2 can use  $m$  input areas. Phase 3 and the merge program calculate their own area requirements.

*Field 21:* This field is set up from control cards, or by the user at exit points GA1 or GA2, prior to the execution of the common area checking routine. The field is initially zero. It contains the input record format.

*Field 22:* This field is set up from control cards, or by the user at exit point GA1 or GA2, prior to execution of the common area checking routine. The field is initially set to one. It contains the actual number of control data fields in the record, except when there are ten fields; in the last case the field contains a zero.

*Field 23:* This field is set up in the same way as Field 22. It contains the size of the control data word in the record.

*Field 24:* This field is set up in the same way as Field 22. It contains the size of the major control data field.

*Field 25:* This field is set up in the same way as Field 22. It contains the relative location of the major control data field in the record. It will be incremented by four if Field 11 is so incremented.

*Field 26:* This field is set up in the same way as Field 22. It contains the size of the second control data field.

*Field 27:* This field is set up in the same way as Field 22. It contains the relative location of the second control data field. It will be incremented by four if Field 11 is so incremented.

*Field 28:* This field is set up in the same way as Field 22. It contains the size of the third control data field.

*Field 29:* This field is set up in the same way as Field 22. It contains the relative location of the third control data field. It will be incremented by four if Field 11 is so incremented.

*Field 30:* This field is set up in the same way as Field 22. It contains the size of the fourth control data field.

*Field 31:* This field is set up in the same way as Field 22. It contains the relative location of the fourth control data field. It will be incremented by four if Field 11 is so incremented.

*Field 32:* This field is set up in the same way as Field 22. It contains the size of the fifth control data field.

*Field 33:* This field is set up in the same way as Field 22. It contains the relative location of the fifth control data field. It will be incremented by four if Field 11 is so incremented.

*Field 34:* This field is set up in the same way as Field 22. It contains the size of the sixth control data field.

*Field 35:* This field is set up in the same way as Field 22. It contains the relative location of the sixth control data field. It will be incremented by four if Field 11 is so incremented.

*Field 36:* This field is set up in the same way as Field 22. It contains the size of the seventh control data field.

*Field 37:* This field is set up in the same way as Field 22. It contains the relative location of the seventh control data field. It will be incremented by four if Field 11 is so incremented.

*Field 38:* This field is set up in the same way as Field 22. It contains the size of the eighth control data field.

*Field 39:* This field is set up in the same way as Field 22. It contains the relative location of the eighth control data field. It will be incremented by four if Field 11 is so incremented.

*Field 40:* This field is set up in the same way as Field 22. It contains the size of the ninth control data field.

*Field 41:* This field is set up in the same way as Field 22. It contains the relative location of the ninth control data field. It will be incremented by four if Field 11 is so incremented.

*Field 42:* This field is set up in the same way as Field 22. It contains the size of the tenth control data field.

*Field 43:* This field is set up in the same way as Field 22. It contains the relative location of the tenth control data field. It will be incremented by four if Field 11 is so incremented.

*Field 44:* This field is set up from control cards, or by the user at exit points in the General Assignment Phase. The contents of the field indicate the sort padding option specified by the user. Initially the field is set to one. This option number indicates there will be no padding checks, and high padding will be added if necessary.

*Field 45:* This field is set up from control cards or by user-written modification routines. It contains the user's specified file size. This field is used by the general assignment routine to check if the number of records specified will exceed sort capacity (the number of records that will fit on  $m - 1$  reels at sort blocking); this field is also used to make a check against the actual number of records read.

*Field 46:* This field is set up from control cards or by user-written modification routines. It contains the amount of storage required for added programming

Sort Common Field	Label	Operation Setting Up Field	No. of Positions	Nature of Operand	Locations in Sort Common
Field 1	COMSRRTYPE	DCW	3	Alphabetic	Loc. 1-3
Field 2	COMIOUNIT1	DCW	5	Numeric	Loc. 4-8
Field 3	COMIOUNIT2	DCW	5	Numeric	Loc. 9-13
Field 4	COMIOUNIT3	DC	5	Numeric	Loc. 14-18
Field 5	COMIOUNIT4	DC	5	Numeric	Loc. 19-23
Field 6	COMIOUNIT5	DC	5	Numeric	Loc. 24-28
Field 7	COMIOUNIT6	DC	5	Numeric	Loc. 29-33
Field 8	COMIOUNIT7	DC	5	Numeric	Loc. 34-38
Field 9	COMIOUNIT8	DC	5	Numeric	Loc. 39-43
Field 10	COMIOUNIT9	DC	5	Numeric	Loc. 44-48
Field 11	COMDATARL1	DCW	4	Numeric	Loc. 49-52
Field 12	COMDATARL2	DCW	4	Numeric	Loc. 53-56
Field 13	COMDATARL3	DCW	4	Numeric	Loc. 57-60
Field 14	COMINPTBLK	DCW	4	Numeric	Loc. 61-64
Field 15	COMINPTLEN	DCW	4	Numeric	Loc. 65-68
Field 16	COMOPTBLK	DCW	4	Numeric	Loc. 69-72
Field 17	COMOTPTLEN	DCW	4	Numeric	Loc. 73-76
Field 18	COMSORTBLK	DCW	4	Numeric	Loc. 77-80
Field 19	COMSORTLEN	DCW	4	Numeric	Loc. 81-84
Field 20	COMGRECNUM	DCW	4	Alphabetic	Loc. 85-88
Field 21	COMRECFORM	DCW	1	Numeric	Loc. 89
Field 22	COMCTFLDN	DCW	1	Numeric	Loc. 90
Field 23	COMCTLSIZE	DCW	4	Numeric	Loc. 91-94
Field 24	COMCTLSIZ1	DCW	3	Numeric	Loc. 95-97
Field 25	COMCTLLOC1	DCW	4	Numeric	Loc. 98-101
Field 26	COMCTLSIZ2	DCW	3	Numeric	Loc. 102-104
Field 27	COMCTLLOC2	DCW	4	Numeric	Loc. 105-108
Field 28	COMCTLSIZ3	DCW	3	Numeric	Loc. 109-111
Field 29	COMCTLLOC3	DCW	4	Numeric	Loc. 112-115
Field 30	COMCTLSIZ4	DCW	3	Numeric	Loc. 116-118
Field 31	COMCTLLOC4	DCW	4	Numeric	Loc. 119-122
Field 32	COMCTLSIZ5	DCW	3	Numeric	Loc. 123-125
Field 33	COMCTLLOC5	DCW	4	Numeric	Loc. 126-129
Field 34	COMCTLSIZ6	DCW	3	Numeric	Loc. 130-132
Field 35	COMCTLLOC6	DCW	4	Numeric	Loc. 133-136
Field 36	COMCTLSIZ7	DCW	3	Numeric	Loc. 137-139
Field 37	COMCTLLOC7	DCW	4	Numeric	Loc. 140-143
Field 38	COMCTLSIZ8	DCW	3	Numeric	Loc. 144-146
Field 39	COMCTLLOC8	DCW	4	Numeric	Loc. 147-150
Field 40	COMCTLSIZ9	DCW	3	Numeric	Loc. 151-153
Field 41	COMCTLLOC9	DCW	4	Numeric	Loc. 154-157
Field 42	COMCTLSIZ0	DCW	3	Numeric	Loc. 158-160
Field 43	COMCTLLOC0	DCW	4	Numeric	Loc. 161-164
Field 44	COMPADDING	DCW	1	Numeric	Loc. 165
Field 45	COMFILESIZ	DCW	7	Numeric	Loc. 166-172
Field 46	COMMODSPH1	DCW	5	Numeric	Loc. 173-177
Field 47	COMMODSPH2	DCW	5	Numeric	Loc. 178-182
Field 48	COMMODSPH3	DCW	5	Numeric	Loc. 183-187
Field 49	No Label	DCW	1	Numeric	Loc. 188
Field 50	COMIPMODUL	DCW	5	Numeric	Loc. 189-193
Field 51	COMOPMODUL	DCW	5	Numeric	Loc. 194-198
Field 52	COMTAPETPE	DCW	1	Numeric	Loc. 199
Field 53	COMIMODPAR	DCW	1	Alphabetic	Loc. 200
Field 54	COMOMODPAR	DCW	1	Alphabetic	Loc. 201
Field 55	COMRELCNT8	DCW	2	Numeric	Loc. 202-203
Field 56	COMRELCNT7	DCW	2	Numeric	Loc. 204-205
Field 57	COMRELCNT6	DCW	2	Numeric	Loc. 206-207
Field 58	COMRELCNT5	DCW	2	Numeric	Loc. 208-209
Field 59	COMRELCNT4	DCW	2	Numeric	Loc. 210-211
Field 60	COMRELCNT3	DCW	2	Numeric	Loc. 212-213
Field 61	COMRELCNT2	DCW	2	Numeric	Loc. 214-215
Field 62	COMRELCNT1	DCW	2	Numeric	Loc. 216-217
Field 63	COMLABELOP	DCW	1	Numeric	Loc. 218
Field 64	COMMERGORD	DCW	1	Numeric	Loc. 219
Field 65	COMRECSIZE	DCW	1	Numeric	Loc. 220
Field 66	COMRCCLOCA	DCW	4	Numeric	Loc. 221-224
Field 67	COMASCSORT	DCW	1	Alphabetic	Loc. 225
Field 68	COMOPTIMIZE	DCW	1	Alphabetic	Loc. 226
Field 69	COMSEQCNTR	DCW	5	Numeric	Loc. 227-231
Field 70	COMCHECKPT	DCW	1	Alphabetic	Loc. 232
Field 71	COMORWDRWU	DCW	4	Alphabetic	Loc. 233-236

Figure 20. Sort Common Field Description Chart, Fields 1 through 71

in Phase 1. It is initially set to zero. This field is used only for a sort.

*Field 47:* This field is set up in the same way as Field 46. It contains the amount of storage required for added programming in Phase 2. This field is used only for a sort.

*Field 48:* This field is set up in the same way as Field 46. It contains the amount of storage required for added programming in Phase 3 of a sort or in a merge program.

*Field 49:* This field can be set up either from control cards or from user-written modification routines at General Assignment Phase exit points GA1 and GA2. For an unbalanced merge, this field contains the lesser order of merge the sort will use. The field has a minimum value of one. It is initialized to an unsigned zero.

*Field 50:* This field is set up by the common area checking routine, or by user-written modification routines at exit point GA3. The field contains the five-digit address of Field 3 unless the address constant in Field 3 is the same as the one in Field 2; if it is, Field 50 will have the address of Field 4. Field 50 indicates which merge file is to be used as input by each pass of Phase 2. In Phase 1, it indicates which merge file is to be used as output. During each pass of Phase 2, the contents of this field are exchanged with the contents of Field 51. This field is used only for a sort.

*Field 51:* This field is set up in the same way as Field 50. It contains the five-digit address of Field 4 if Field 50 contains the address of Field 3. If Field 50 contains the address of Field 4, then Field 51 contains the address of Field 3. Field 51 is used only in a sort.

*Field 52:* This field is set up from control cards, or by user-written modification routines in the General Assignment Phase. The field contains the specified tape density. It initially contains a 5, which is the option indicating 556 cpi.

*Field 53:* This field is set up from control cards, or by user-written modification routines at exit points GA2 or GA3. The field contains a character which indicates the input mode and input parity. It is initially a "J", which indicates Move mode and even parity. The other options are: "/" for Load mode, even parity; "S" for Load mode, odd parity; and "K" for Move mode, odd parity. This field is used for both a sort and a merge.

*Field 54:* This field is set up in the same way as Field 53. It contains the character that indicates the output mode and output parity. The options are the same as those for Field 53. The field is used for both a sort and a merge.

*Field 55:* This field is set up from control cards, or by user modification, in the General Assignment Phase. The field, used only for a merge, contains the number of reels on the eighth merge program input unit. It is initially set to zero.

*Field 56:* This field is set up in the same way as Field 55. It contains the number of reels on the seventh merge program input unit.

*Field 57:* This field is set up in the same way as Field 55. It contains the number of reels on the sixth merge program input unit.

*Field 58:* This field is set up in the same way as Field 55. It contains the number of reels on the fifth merge program input unit.

*Field 59:* This field is set up in the same way as Field 55. It contains the number of reels on the fourth merge program input unit.

*Field 60:* This field is set up in the same way as Field 55. It contains the number of reels on the third merge program input unit.

*Field 61:* This field is set up in the same way as Field 55. It contains the number of reels on the second merge program input unit.

*Field 62:* This field is set up in the same way as Field 55. This field, however, is used for both a sort and a merge. In a merge, it contains the number of reels on the first merge program input unit. For a sort, it contains the number of reels that make up the sort input file.

*Field 63:* This field is set up from control cards if there are user-specified labels, or by user-written modification routines, in the General Assignment Phase. The field initially contains a zero. It should contain a 1 if IBM 1410 80-Character tape labels are used, a 2 if IBM Standard 120-Character tape labels are used, or a 3 if nonstandard labels are used.

*Field 64:* This field can be set up from control cards, or by user modification in the General Assignment Phase exit points GA1 or GA2. The field contains the merge order the sort or merge will use. In a sort using an unbalanced merge, this is the greatest order of merge. For a sort, this field has a minimum value of two; for a merge, it has a minimum value of one. It is initialized to zero. This field is signed plus by the common area checking routine. In a sort, this value may be reduced prior to Phase 3 if the number of sequences remaining is less than the merge order.

*Field 65:* This field is set up from control cards, or by user modification at exit points GA1 or GA2. This field contains the size of the Record Character-Count field. It is used only for variable-length records and

is necessary only for variable-length blocked records. It is initially set to zero.

*Field 66:* This field is set up in the same way as Field 65. It contains the location, within the record, of the Record Character-Count field.

*Field 67:* This field is set up from control cards, or by user modification, in the General Assignment Phase. The field contains the character specifying whether the sort or merge is ascending or descending. For an ascending sort or merge, the character is an "A"; for a descending sort or merge, it is a "D". Any other character is invalid. The field initially contains an "A".

*Field 68:* This field is set up in the same way as Field 67. The field contains the optimized B (sort blocking) option character. The three valid option characters are "N", "Y", and "M". The field initially contains an "N". For a complete description of these options, see OPTIMB, under "Preparation of Control Cards," in the "Program Operation" section. The field is used only for a sort.

*Field 69:* This field is for internal use of the sort. A count is kept here of the number of sequences produced by Phase 1 and by each merge pass of Phase 2. This field is used only for a sort. The zone bits of the units position of the field are used to record the unload option character for Phase 2. The field has a plus sign if the control card option UNLOAD was specified, and indicates that the tapes are to be unloaded at the end of Phase 1 and the end of each Phase 2 pass. The zone bits are cleared during the Phase 1 or merge program assignment routines.

*Field 70:* This field can be set up from control cards or by user-written modification routines. The field specifies the checkpoint option. It contains a "Y" if checkpoints are to be taken, and an "N" if none are to be taken. The field is initialized as "N".

*Field 71:* This field is set up from control cards or by user-written modification routines. It contains the character specifying the output file rewind option. Each of the four characters of this field is one of the three legal iocs options: "R", "U", or "N". For further information, see REWIND, under "Preparation of Control Cards," in the "Program Operation" section. The field is initially RRUU.

The following areas in Sort Common provide the structure for creating the File Tables, File Table Extensions and iorw's utilized by the sort or merge program. The areas and the fields that they contain are as follows:

1. Sort input File Table Extension area (Sort Common Fields 72 through 91)

2. Sort or merge output File Table Extension area (Sort Common Fields 92 through 111)

3. Basic iorw area (Sort Common Fields 112 through 125)

4. Basic File Table area (Sort Common Fields 126 through 150)

5. Merge File Table Extension area, used for the sort program merge files and for the merge program input files (Sort Common Fields 151 through 170)

The last field in the Sort Common area (Field 171) contains a group mark with word mark.

Each of the above File Table Extension areas has sufficient fields to enable the specification of up to four user-written tape-label exit addresses.

The following description of the fields is related to their use with and by the sort or merge program. The definitive description of the fields, their contents and their use is contained in the publication *Basic Input/Output Control System*.

#### SORT INPUT FILE TABLE EXTENSION AREA

(Additional information on each field in this area is provided in Figure 21.)

*Field 72:* This field contains the terminating table lookup character. The field is initially a blank.

*Field 73:* This field contains the first tape-label routine address. The field is initially five blanks.

*Field 74:* This field contains the first tape-label exit indicator. The field is initially blank.

*Field 75:* This field contains the second tape-label routine address. The field is initially five blanks.

*Field 76:* This field contains the second tape-label exit indicator. The field is initially blank.

*Field 77:* This field contains the third tape-label routine address. The field is initially five blanks.

*Field 78:* This field contains the third tape-label exit indicator. The field is initially blank.

*Field 79:* This field contains the fourth tape-label routine address. The field is initially five blanks.

*Field 80:* This field contains the fourth tape-label exit indicator. The field is initially blank.

*Field 81:* This field contains the first tape-label indicator. The field is initially a "V".

*Field 82:* This field contains the second tape-label indicator. The field is initially a "V".

*Field 83:* This field contains the third tape-label indicator. The field is initially a "V".

*Field 84:* This field contains the fourth tape-label indicator. The field is initially a "V".

*Field 85:* This field contains the fifth tape-label indicator. The field is initially a "V".

*Field 86:* Record form field. For either a sort or merge, this field is always set for Form 1 records, and therefore *must* contain an "F".

*Field 87:* Retention period field. It is initially blank.

*Field 88:* Creation date field. It is initially blank.

*Field 89:* File identifier field. It is initially blank.

*Field 90:* File serial number field. It is initially blank.

*Field 91:* Reel sequence number field. It is initially blank.

SORT OR MERGE OUTPUT FILE TABLE EXTENSION AREA  
(Additional information on each field in this area is contained in Figure 22.)

*Field 92:* This field contains the terminating table lookup character. The field is initially blank.

*Field 93:* This field contains the first tape-label routine address. The field is initially five blanks.

*Field 94:* This field contains the first tape-label exit indicator. The field is initially blank.

*Field 95:* This field contains the second tape-label routine address. The field is initially five blanks.

Sort Common Field	Label	Operation Setting Up Field	No. of Positions	Nature of Operand	Locations in Sort Common
Field 72	COMINPEXTN	DCW	1	Alphabetic	Loc. 237
Field 73	COMIPEXT01	DCW	5	Alphabetic	Loc. 238-242
Field 74	COMIPEXT02	DC	2	Alphabetic	Loc. 243-244
Field 75	COMIPEXT03	DCW	5	Alphabetic	Loc. 245-249
Field 76	COMIPEXT04	DC	2	Alphabetic	Loc. 250-251
Field 77	COMIPEXT05	DCW	5	Alphabetic	Loc. 252-256
Field 78	COMIPEXT06	DC	2	Alphabetic	Loc. 257-258
Field 79	COMIPEXT07	DCW	5	Alphabetic	Loc. 259-263
Field 80	COMIPEXT18	DC	2	Alphabetic	Loc. 264-265
Field 81	COMIPEXT08	DC	1	Alphabetic	Loc. 266
Field 82	COMIPEXT09	DC	1	Alphabetic	Loc. 267
Field 83	COMIPEXT10	DC	1	Alphabetic	Loc. 268
Field 84	COMIPEXT11	DC	1	Alphabetic	Loc. 269
Field 85	COMIPEXT12	DC	1	Alphabetic	Loc. 270
Field 86	COMINPLTST	DCW	1	Alphabetic	Loc. 271
Field 87	COMIPEXT13	DCW	4	Numeric	Loc. 272-275
Field 88	COMIPEXT14	DCW	5	Numeric	Loc. 276-280
Field 89	COMIPEXT15	DCW	10	Alphabetic	Loc. 281-290
Field 90	COMIPEXT16	DCW	5	Alphabetic	Loc. 291-295
Field 91	COMIPEXT17	DCW	4	Numeric	Loc. 296-299

Figure 21. Sort Common Field Description Chart, Fields 72 through 91 (Sort Input File Table Extension Area)

Sort Common Field	Label	Operation Setting Up Field	No. of Positions	Nature of Operand	Location in Sort Common
Field 92	COMOTPEXTN	DCW	1	Alphabetic	Loc. 300
Field 93	COMOPEXT01	DCW	5	Alphabetic	Loc. 301-305
Field 94	COMOPEXT02	DC	2	Alphabetic	Loc. 306-307
Field 95	COMOPEXT03	DCW	5	Alphabetic	Loc. 308-312
Field 96	COMOPEXT04	DC	2	Alphabetic	Loc. 313-314
Field 97	COMOPEXT05	DCW	5	Alphabetic	Loc. 315-319
Field 98	COMOPEXT06	DC	2	Alphabetic	Loc. 320-321
Field 99	COMOPEXT07	DCW	5	Alphabetic	Loc. 322-326
Field 100	COMOPEXT08	DC	2	Alphabetic	Loc. 327-328
Field 101	COMOPEXT09	DC	1	Alphabetic	Loc. 329
Field 102	COMOPEXT10	DC	1	Alphabetic	Loc. 330
Field 103	COMOPEXT11	DC	1	Alphabetic	Loc. 331
Field 104	COMOPEXT12	DC	1	Alphabetic	Loc. 332
Field 105	COMOPEXT13	DC	1	Alphabetic	Loc. 333
Field 106	COMOTPLTST	DCW	1	Alphabetic	Loc. 334
Field 107	COMOPEXT14	DCW	4	Numeric	Loc. 335-338
Field 108	COMOPEXT15	DCW	5	Numeric	Loc. 339-343
Field 109	COMOPEXT16	DCW	10	Alphabetic	Loc. 344-353
Field 110	COMOPEXT17	DCW	5	Alphabetic	Loc. 354-358
Field 111	COMOPEXT18	DCW	4	Numeric	Loc. 359-362

Figure 22. Sort Common Field Description Chart, Fields 92 through 111 (Sort or Merge Output File Table Extension Area)

*Field 96:* This field contains the second tape-label exit indicator. The field is initially blank.

*Field 97:* This field contains the third tape-label routine address. The field is initially five blanks.

*Field 98:* This field contains the third tape-label exit indicator. The field is initially blank.

*Field 99:* This field contains the fourth tape-label routine address. The field is initially five blanks.

*Field 100:* This field contains the fourth tape-label exit indicator. The field is initially blank.

*Field 101:* This field contains the first tape-label indicator. The field is initially a "V".

*Field 102:* This field contains the second tape-label indicator. The field is initially a "V".

*Field 103:* This field contains the third tape-label indicator. The field is initially a "V".

*Field 104:* This field contains the fourth tape-label indicator. The field is initially a "V".

*Field 105:* This field contains the fifth tape-label indicator. The field is initially a "V".

*Field 106:* Record form field. For either a sort or merge, this field is always set for Form 1 records, and therefore *must* contain an "F".

*Field 107:* Retention cycle field. It is initially blank.

*Field 108:* Creation date field. It is initially blank.

*Field 109:* File identifier field. It is initially blank.

*Field 110:* File serial number field. It is initially blank.

*Field 111:* Reel sequence number field. It is initially blank.

*Field 112:* High-order position of the link field of the IORW. The link field is made up of Sort Common Fields 112 and 113. The high-order position is initially zero.

*Field 113:* Remaining portion of the link field. The contents of this portion are initially zero.

*Field 114:* Contains the File List address field. The field is initially blank.

*Field 115:* Input/output operation field. It is initially set to "M@U100000R". If the field is modified, the mode and parity must be consistent with the control card field.

*Field 116:* Error count field. It is initially blank.

*Field 117:* Error indicator field used by the IOCS. It is initially blank.

*Field 118:* This field contains the Channel Status Character, and is used by the IOCS in performing the error test. The field is initially a word separator character. For wrong-length-record checking on fixed-length input, a B bit is placed in this field during Phase 1 of the sort and during the assignment program of a merge. The sort or merge program will always place the B bit in this field, since the execution of the instruction occurs after the exit points in the respective phases.

*Field 119:* IORW indicator field Q1. It is initialized to a "V".

*Field 120:* IORW indicator field Q2. It is initialized to a "V".

*Field 121:* IORW indicator field Q3. It is initialized to a "V".

*Field 122:* IORW indicator field Q4. It is initialized to a "V". *This field must not be changed.*

*Field 123:* IORW indicator field Q5. It is initialized to a "W". *This field must not be changed.*

#### BASIC IORW (INPUT/OUTPUT REQUEST WORD) AREA

(Additional information on each field in this area is contained in Figure 23.)

Sort Common Field	Label	Operation Setting Up Field	No. of Positions	Nature of Operand	Locations in Sort Common
Field 112	COMIOSTART	DCW	1	Numeric	Loc. 363
Field 113	COMIOLINKS	DC	4	Numeric	Loc. 364-367
Field 114	COMFILEADR	DCW	5	Numeric	Loc. 368-372
Field 115	COMOPERFLD	DCW	10	Alphabetic	Loc. 373-382
Field 116	COMERROCNT	DCW	2		Loc. 383-384
Field 117	COMCHANSTA	DC	1	Alphabetic	Loc. 385
Field 118	COMERROIN1	DC	1	Alphabetic	Loc. 386
Field 119	COMERRORQ1	DC	1	Alphabetic	Loc. 387
Field 120	COMERRORQ2	DC	1	Alphabetic	Loc. 388
Field 121	COMERRORQ3	DC	1	Alphabetic	Loc. 389
Field 122	COMERROQ4	DC	1	Alphabetic	Loc. 390
Field 123	COMERRORQ5	DC	1	Alphabetic	Loc. 391
Field 124	COMERRORQ6	DC	1	Alphabetic	Loc. 392
Field 125	COMSTORREG	DCW	5	Alphabetic	Loc. 393-397

Figure 23. Sort Common Field Description Chart, Fields 112 through 125 (Basic Input/Output Request Word Area)

*Field 124:* IORW indicator field Q6. It is initialized to a "V".

*Field 125:* Address Register field. It is initially blank.

BASIC FILE TABLE AREA

(Additional information on each field in this area is contained in Figure 24.)

*Field 126:* File Table Extension address field. It is initialized to zero.

*Field 127:* Block Count field. This field is used to count the blocks in the input file. It is initially blank.

*Field 128:* Reel count field. It is initially set to zero.

*Field 129:* Rewind and rewind unload option field. This field can be set up directly from control cards. It is initialized to "RRUU".

*Field 130:* File List Origin field. This field contains the address of the first IORW on the list. The field is initially blank.

*Field 131:* Symbolic unit field. The symbolic unit address constant is placed in this field. The field is initially blank.

*Field 132:* End-of-file address field. If the user modifies this field he must save the address placed there by the sort or merge program, and use that address as the return from his routine. (This address is constant throughout the program.)

*Field 133:* File Table indicator field F1. It is initialized to a "V".

*Field 134:* File Table indicator field F2. It is initialized to a "V".

*Field 135:* File Table indicator field F3. It is initialized to a "V". This position should not be altered.

*Field 136:* File Table indicator field F4. It is initialized to a "V". The numeric portion of this character *must* be a 5.

*Field 137:* File Table indicator field F5. It is initialized to a "V". The numeric portion of this character *must* be a 5.

*Field 138:* File Table indicator field F6. It is initialized to a 4.

*Field 139:* Index register field. It is initially zeros, and is unchanged by the program.

*Field 140:* Field for the high-order address of the input/output area. It is initially blank, and is unchanged by the program.

*Field 141:* Form field. It is initially blank for Form 1 records, and is unchanged by the program. This field *must not* be changed by the user.

*Field 142:* Form field. It is initially blank for Form 1 records. This field is unchanged by the program, and *must not* be changed by the user.

*Field 143:* Unlabeled form field. It is initially zeros for Form 1 records. The field is unchanged by the program, and *must not* be changed by the user.

*Field 144:* File Table error indicator field I. It is initially blank.

Sort Common Field	Label	Operation Setting Up Field	No. of Positions	Nature of Operand	Locations in Sort Common
Field 126	COMFILETAB	DCW	5	Numeric	Loc. 398-402
Field 127	COMBLKCNTN	DCW	5	Alphabetic	Loc. 403-407
Field 128	COMREELCTR	DCW	2	Numeric	Loc. 408-409
Field 129	COMMRWRWU	DCW	4	Alphabetic	Loc. 410-413
Field 130	COMFILSTOG	DCW	5	Alphabetic	Loc. 414-418
Field 131	COMSYMUNIT	DCW	5	Alphabetic	Loc. 419-423
Field 132	COMUSEREOF	DCW	5	Alphabetic	Loc. 424-428
Field 133	COMFILIND1	DC	1	Alphabetic	Loc. 429
Field 134	COMFILIND2	DC	1	Alphabetic	Loc. 430
Field 135	COMFILIND3	DC	1	Alphabetic	Loc. 431
Field 136	COMFILIND4	DC	1	Alphabetic	Loc. 432
Field 137	COMFILIND5	DC	1	Alphabetic	Loc. 433
Field 138	COMFILIND6	DC	1	Numeric	Loc. 434
Field 139	No Label	DCW	2	Numeric	Loc. 435-436
Field 140	No Label	DCW	5		Loc. 437-441
Field 141	No Label	DCW	5		Loc. 442-446
Field 142	No Label	DCW	5		Loc. 448-451
Field 143	No Label	DCW	4		Loc. 452-455
Field 144	COMERRORP1	DC	1	Numeric	Loc. 456
Field 145	COMERRORP2	DC	1	Numeric	Loc. 457
Field 146	COMERRORP3	DC	1	Alphabetic	Loc. 458
Field 147	COMERRORP4	DC	1	Alphabetic	Loc. 459
Field 148	COMERRORP5	DC	1	Alphabetic	Loc. 460
Field 149	COMERROADR	DCW	5	Alphabetic	Loc. 461-465
Field 150	COMINTRADR	DCW	5	Alphabetic	Loc. 466-470

Figure 24. Sort Common Field Description Chart, Fields 126 through 150 (Basic File Table Area)



*Field 145:* File Table error indicator field 2. It is initially blank.

*Field 146:* File Table error indicator field 3. It is initially blank.

*Field 147:* File Table error indicator field 4. It is initially blank.

*Field 148:* File Table error indicator field 5. It is initially blank.

*Field 149:* This field contains an error routine address. If the user has a separate error routine, the entry-point address should be placed here. The field is initially blank.

*Field 150:* This field contains a service routine address. If the user has a separate service routine, the entry-point address should be placed here. This field is initially blank.

#### MERGE FILE TABLE EXTENSION AREA

(Additional information on each field in this area is contained in Figure 25.)

*Field 151:* This is the terminal table lookup character. The field is initially blank.

*Field 152:* This field contains the first tape-label routine address. The field is initially five blanks.

*Field 153:* This field contains the first tape-label exit indicator. The field is initially blank.

*Field 154:* This field contains the second tape-label routine address. The field is initially five blanks.

*Field 155:* This field contains the second tape-label exit indicator. The field is initially blank.

*Field 156:* This field contains the third tape-label routine address. The field is initially five blanks.

*Field 157:* This field contains the third tape-label exit indicator. The field is initially blank.

*Field 158:* This field contains the fourth tape-label routine address. The field is initially five blanks.

*Field 159:* This field contains the fourth tape-label exit indicator. The field is initially blank.

*Field 160:* This field contains the first tape-label indicator. It is initially a "V".

*Field 161:* This field contains the second tape-label indicator. It is initially a "V".

*Field 162:* This field contains the third tape-label indicator. It is initially a "V".

*Field 163:* This field contains the fourth tape-label indicator. It is initially a "V".

*Field 164:* This field contains the fifth tape-label indicator. It is initially a "V".

*Field 165:* Record form field for a sort or merge. The field is always set for Form 1 records, and therefore *must* contain an "F".

*Field 166:* Retention cycle field. It is initially blank.

*Field 167:* Creation date field. It is initially blank.

*Field 168:* File identifier field. It is initially blank.

*Field 169:* File serial number field. It is initially blank.

*Field 170:* Reel sequence number field. It is initially blank.

*Field 171:* This field is the last field in the Sort Common area for the sort or merge. The field contains a group mark with word mark. (See Figure 26.)

Sort Common Field	Label	Operation Setting Up Field	No. of Positions	Nature of Operand	Locations in Sort Common
Field 151	COMMEREXTN	DCW	1	Alphabetic	Loc. 471
Field 152	COMMEREXT1	DCW	5	Alphabetic	Loc. 472-476
Field 153	COMMEREXT2	DCW	2	Alphabetic	Loc. 477-478
Field 154	COMMEREXT3	DCW	5	Alphabetic	Loc. 479-483
Field 155	COMMEREXT4	DC	2	Alphabetic	Loc. 484-485
Field 156	COMMEREXT5	DCW	5	Alphabetic	Loc. 486-490
Field 157	COMMEREXT6	DCW	2	Alphabetic	Loc. 491-492
Field 158	COMMEREXT7	DCW	5	Alphabetic	Loc. 493-497
Field 159	COMMEREXT8	DC	2	Alphabetic	Loc. 498-499
Field 160	COMMRGLBL1	DC	1	Alphabetic	Loc. 500
Field 161	COMMRGLBL2	DC	1	Alphabetic	Loc. 501
Field 162	COMMRGLBL3	DC	1	Alphabetic	Loc. 502
Field 163	COMMRGLBL4	DC	1	Alphabetic	Loc. 503
Field 164	COMMRGLBL5	DC	1	Alphabetic	Loc. 504
Field 165	COMMERLTST	DCW	1	Alphabetic	Loc. 505
Field 166	COMRECYCL	DCW	4	Alphabetic	Loc. 506-509
Field 167	COMCREDATE	DCW	5	Numeric	Loc. 510-514
Field 168	COMFILEID	DCW	10	Alphabetic	Loc. 515-524
Field 169	COMFILESER	DCW	5	Alphabetic	Loc. 525-529
Field 170	COMRELSER	DCW	4	Numeric	Loc. 530-533

Figure 25. Sort Common Field Description Chart, Fields 151 through 170 (Merge File Table Extension Area)

Sort Common Field	Label	Operation Setting Up Field	No. of Positions	Nature of Operand	Locations in Sort Common
Field 171	COMGRPMARK	DCW	1	Alphabetic	Loc. 534

Figure 26. Sort Common Field Description Chart, Field 171

The Sort Common area is immediately followed in core storage by two characters which are not part of the common area (i.e., they are not included in the downward relocation factor established by the BASE2 statement). The first character is a blank. The second is an N with a word mark. The running program will be loaded above these two characters in core storage.

### Linkage Symbols

The sort or merge programs produced make extensive use of linkage symbols for communication between the modules in each phase. Certain of these symbols are available for use or reference by modification routines supplied by the user; he may also utilize any reasonable number of linkage symbols in his own routines. The initial character of all sort or merge program linkage symbols is the letter "S". To avoid possible duplication, the linkage symbols used in added programming should not begin with this character.

The following list contains descriptions of those sort or merge program linkage symbols that may be referenced by user-written modification routines. If the linkage symbol may be used at the time of an exit, the name of the exit point is indicated. The "Exit Point Description" subsection of this section lists, for each exit point, the sort or merge program linkage symbols that may be referenced by added programming at that point.

LINKAGE SYMBOL	DESCRIPTION
SBS1/	Address of the first core-storage location <i>above</i> the Sort Common area.
SBS2/	Address of the highest core-storage location of the Sort Common area.
SMGA/	Address of the one-character NOP instruction in the last position of the control card reading routine. The instruction immediately precedes the control card checking routine, or the user-written modification routines at exit GA2, if the exit point is present.
SMGB/	Address of the one-character NOP instruction in the last position of the routine that checks the common area and calculates B and G. It immediately precedes the routine that links the General Assignment Phase to the next phase or to the user-written modification routines at exit GA3, if the exit point is present.

LINKAGE SYMBOL	DESCRIPTION
SO0T/	The return point to the Phase 1 running program if a data record has been deleted by a routine at exit point P11.
SI95/	The return point to the Phase 1 running program if a data record has been moved to the Record Storage Area by the user, and is not to be moved by the program.
SIHA/	Address of the six-character unsigned numeric field which is used to count the number of records deleted from the input file in Phase 1.
SIHB/	Address of the six-character unsigned numeric field used to count the number of records inserted into the input file in Phase 1.
SOGY/	Address of the high-order position (the carriage-control character) of a 134-position print field. (The last character or low-order position of the field is a group mark with word mark.) The field may be used by added programming in Phase 1 as a print area. The high-order position of the field contains a word mark which must not be destroyed. Word marks must not be placed in other positions in the area. The area remains in core storage throughout the execution of Phase 1.
SOVC/	Address of the first instruction (an SBR in the return address) of a print routine that will write the print area defined by SOGY/ on the Standard Print Unit. The routine remains in core storage throughout the execution of Phase 1, and may be used by added programming in Phase 1.
SO26/	Address of a six-digit, unsigned numeric field which is used to count the total number of data records inserted into the final output file of a sort or merge program. The field remains in core storage throughout the execution of Phase 3, and the merge.
SO30/	Address of a six-digit, unsigned numeric field which is used to count the total number of data records deleted from the final output file of a sort or merge program. The field remains in core storage throughout Phase 3 and the merge.
SO01/	Address of an instruction which should be returned to if: (a) the Phase 3 or merge program output routine is not to move the current record from the input area to the output area, and (b) the exit point P32 is to be re-entered prior to the program's entering the merge network for the next record. It is used when records are inserted at exit point P32. The instruction is in core storage throughout Phase 3 and the merge.

LINKAGE SYMBOL	DESCRIPTION
SO65/	Address of an instruction which should be returned to if the user, in a Phase 3 or merge program modification routine at exit P32, lengthens, shortens, or alters a record in the input area. This instruction remains in core storage throughout Phase 3 or the merge.
SM62/	The core-storage location containing a word mark switch. The word mark is set by the sequence check in the merge network if the current record coming out of the merge is equal to the preceding record out. The program does not clear the word mark. The user must clear the word mark if the switch is being used. No other bit position in the character should be altered by the user. The one-position field remains in core storage throughout Phase 3 or the merge.
SIO1/	Address of an instruction to which the user's routine should branch if an unblocked, variable-length record is to be inserted in the output file during Phase 3 or the merge. This instruction remains in core storage throughout Phase 3 or the merge.
SIO2/	B-address of an instruction that sets a group mark with word mark at the end of an unblocked, variable-length record. This instruction remains in core storage throughout Phase 3 or the merge.
SI54/	Address of a seven-digit, unsigned numeric field used for counting the total number of data records processed by the output routine. This counter remains in core storage throughout Phase 3 or the merge.
SI55/	Address of an instruction which the user's routine in Phase 3 or the merge should return to if (1) the routine, located at exit P31, has summarized records or (2) the routine, located at exit point P32, has deleted a record in either the input area or the user's work area, or has altered a record in the work area. The instruction remains in core storage throughout Phase 3 or the merge.
SIN5/	Address of an instruction to which the user's routine should return after inserting a blocked variable-length record into the output file. Reference may be made to this linkage symbol throughout Phase 3 or the merge.
SOKS/	Address of a four-digit, unsigned numeric field into which the user's routine must place the Record Character-Count of an inserted blocked, variable-length record. If the user is deleting a record, this field will contain the Record Character-Count of the record being deleted. The field remains in core storage throughout Phase 3 or the merge.
SI88/	Address of a five-digit, positively signed numeric field used for Form 4 records to determine whether or not the next record can fit in the output area. This field remains in core storage throughout Phase 3 or the merge.
SOO8/	Address of a five-digit, positively signed numeric field that contains the maximum output block length for Form 4 records.

This constant remains in core storage throughout Phase 3 or the merge.

SOPR/	Address of the high-order position (carriage-control character) of a 134-position print field which may be used by added programming routines. The last character of the field is a group mark with word mark. The word mark in the high-order position of the field must not be destroyed. Word marks should not appear in any other position in the field. The field remains in core storage throughout the execution of Phase 3 or the merge.
SO07/	Address of the output routine instruction issuing a write tape command. This field remains in core storage throughout Phase 3 or the merge.
SO10/	Address of a print routine which will accomplish the printing of the field at SOPR/. The first instruction of the routine is an SBR to the operand of the exit branch. The routine remains in core storage throughout the execution of Phase 3 or the merge.

### Input/Output Modification

Because the sort or merge programs produced provide the user with access to the IOCS File Tables and IORW's, he can modify the IOCS error, tape-label, service, and end-of-file routines, if desired.

At specific sort or merge program exits, the user may either alter the contents of the input, merge, and output File Tables and IORW's, or may completely replace those provided with ones contained in his added programming. However, only certain fields are completely available to the user; the sort or merge program requires specific values in many of the fields to enable execution.

The full description of the arrangement and contents of the File Tables, File Table Extensions and IORW's is contained in the publication *Basic Input/Output Control System*. The following discussion assumes that the reader has an understanding of the information contained therein.

The sort or merge program uses the File Tables and IORW's in the Sort Common area as a basis for setting up those actually used when the program is executed. By modifying the common fields, the user is effectively modifying related fields used throughout the program. There is one File Table, one IORW and three File Table Extensions in Sort Common. The File Table and IORW are used to set up File Tables for the input, merge and output files in each phase of the program. They are set up, as desired, in the assignment routines and then moved to the working File Table and IORW areas. One tape-label File Table Extension is for the input file, one for the merge files, and one for the output files.

The following assumptions and requirements apply to the File Tables, File Table Extensions, and IORW's, as set up by the program:

1. They are initially set for no labels. This condition may be altered by LABELDES control card entries.

2. They are initially set for Move mode, even parity. This condition may be altered by control card entries.

3. All error conditions will be specified to be checked (except for WLR which is set during the running program to check for wrong-length-records on fixed-length records only).

4. All uncorrectable errors will be accepted. This condition may be altered by control card information to skip uncorrectable errors.

5. The rewind option RRUU is assumed for Phase 1 input and Phase 3 output, and RRRR for all the merge files. This condition may be changed by control card information.

6. The end-of-file address is set to the sort or merge program end-of-file routine. If the address is changed to a user address, the user's routine must save the sort or merge program address for the return to the running program.

7. The File Tables and File Table Extensions are set for Form 1 records and *must not be changed*. Any other entry will prevent proper execution of the program.

The contents of the fields contained in the File Table, File Table Extension and IORW areas are described in the "Sort Common Area" subsection. These descriptions also indicate whether a field may or may not be changed by the user.

### **Record Length Changes by the Sort or Merge Program**

Under certain conditions, the General Assignment routines will alter Sort Common area fields that stipulate record and block lengths. The user must be aware of these changes if he is including modifications. For a sort program, the pertinent fields that may be changed are 11, 12, 13, 15, 17, 25, 27, 29, 31, 33, 35, 37, 39, 41 and 43. For a merge, the record-length field that may be changed is 13. The contents of the fields will indicate the length of the records or blocks as they appear after adjustment. For a description of the changes that may occur, consult the individual field descriptions in the "Sort Common Area" subsection.

### **Exit Point Descriptions**

The exit points provided in the program are described in detail in this subsection. For a summary of the exit point locations and suggested uses, see Figure 18 in the "Execution of Added Programming" subsection. Significant conditions governing the use of each exit point are specified in the descriptions. In each case, the description is limited to covering those factors that

are essential to satisfactory program performance. To meet the user's individual requirements, each modification will, of course, include the additional instructions necessary. The programming technique to be used within the framework of the specifications for each exit is left to the discretion of the user.

The format used for the description of each of the exit points is as follows:

*Description:* Describes the location of the exit point.

*Return Linkages:* Describes the possible return points from the exit point.

*Linkage Symbols:* Lists those linkage symbols that may be referenced by the user's routine at the specific exit point.

*Required Index Register Conditions:* Specifies those index registers whose contents must be restored by the added programming, or left undisturbed.

*Comments on Use:* Describes some of the applications that may be performed at the exit point.

### **General Assignment Phase Exit Points**

#### **EXIT CAL**

*Description:* This exit point provides access to an area in which the user may retain information throughout the execution of the sort or merge program. It is physically located below all the program routines, two positions above Sort Common.

*Return Linkages:* Routines executed in the CAL area can be entered only from a routine at one of the other exit points or from an IOCS exit. The return from these routines must, therefore, be provided by the routine from which it was entered, or through an SBR instruction.

*Linkage Symbols:* Routines in the CAL area have access to those linkage symbols which are available at the time the routines are relocated by the Linkage Loader. These include SBS1/, SBS2/, SMGA/, and SMGB/.

*Required Index Register Conditions:* The index register conditions that apply to routines executed in CAL are determined by when the routines are executed in the program. Routines in CAL that are branched to from other sort exit points must adhere to the restrictions at those points. If the routines in CAL are branched to from any other point, all index registers used should be saved and restored.

*Comments on Use:* The primary purpose of CAL is to provide the user with an area in which he may save constants, counters, and routines to be used

throughout the execution of a sort program. These may include, for example, the user's iocs tape-label, service, and error routines.

#### EXIT GA1

*Description:* This is the first General Assignment Phase exit point for either a sort or merge. It occurs following the initialization of common and prior to reading the sort control cards. Routines at this point are entered once and are executed in line after the preceding instructions.

*Return Linkages:* The normal return is to the next instruction following the routine. If the control card reading routine is to be bypassed, the return can be to the linkage symbol SMGA/. If the user wishes to bypass the routine that checks the Sort Common control information for validity and consistency, and in a sort, calculates B and G, the return can be to linkage symbol SMGB/ or to the user's added routine at exit point GA3.

*Linkage Symbols:* Routines at exit point GA1 may use linkage symbols SBS1/, SBS2/, SMGA/, and SMGB/.

*Required Index Register Conditions:* Routines at this exit point may use index registers 01 through 13 without having to save and restore the contents.

*Comments on Use:* The purpose of this exit point is to enable the user to supply his own control information in Sort Common, eliminating the necessity for reading some or all of the sort control cards. If the user completely sets up Sort Common himself he may bypass the common area checking and B and G calculation routine. This, however, should be done only if the user is familiar with all the functions and properties of the Sort Common area.

#### EXIT GA2

*Description:* If activated, this exit point occurs in the General Assignment Phase of both sort and merge programs. The exit point follows the routine that reads the sort control cards and sets up the control card information in the Sort Common area. It precedes the common area checking and B and G calculation routine. Routines at this point are entered once, and are executed in line after the preceding instructions.

*Return Linkages:* The normal return is to the next instruction following the routine. If the common area checking and B and G calculation routine is to be bypassed, the return can be to the linkage symbol SMGB/ or to the user's added routine at exit point GA3.

*Linkage Symbols:* Routines at exit point GA2 may use linkage symbols SBS1/, SBS2/, SMGA/, and SMGB/.

*Required Index Register Conditions:* Routines at GA2 may use index registers 01 through 13 without having to save and restore the contents.

*Comments on Use:* This exit may be used separately, or in conjunction with exits GA1 and GA3, to set up or modify the contents of Sort Common. Bypassing the common area checking routine should be done with caution.

#### EXIT GA3

*Description:* If activated, this exit point follows the execution of the General Assignment Phase of a sort or merge program, and is followed only by the link to the Resident Monitor to load the next phase. Routines at this point are entered once, and are executed in line after the preceding instructions.

*Return Linkages:* The normal return is to the next instruction following the routine.

*Linkage Symbols:* Routines at exit point GA3 may use linkage symbols SBS1/, SBS2/, SMGA/, and SMGB/.

*Required Index Register Conditions:* Routines at GA3 may use index registers 01 through 13 without having to save and restore the contents.

*Comments on Use:* This exit point is provided to enable the user to perform any final general assignment function prior to entering Phase 1 of the sort or merge program.

### Phase 1 Exit Points

#### EXIT P11

*Description:* If activated, this exit point occurs at the point in the running program when each record is about to be moved from the input area to the Record Storage Area. Routines at this exit point are entered for each input record, and are executed in line after the preceding instructions.

*Return Linkages:* The normal return is to the next sequential instruction. If a record is deleted at this exit, the return should be to SO0T/. If a record is moved to the Record Storage Area by the user, the return should be to SI95/.

*Linkage Symbols:* In addition to the return linkage symbols, the added routine may refer to linkage symbols SBS1/, SBS2/, SOGY/, SOVC/, SIHA/, and SIHB/.

*Required Index Register Conditions:* At the time this exit is entered, the contents of index registers 11, 08, and 12 are as follows: Index register 11 contains the address of the high-order position of the current input record; index register 08 contains the address of the high-order position of the field in the Record Stor-

age Area to which the current input record is to be moved; and index register 12 contains the address of the high-order position of the last record moved to the output area from the Record Storage Area. (Until the record storage area is filled, this will not reference a valid record, and the B and A bits of the hundreds position of index register 08 will be present.) Index registers 08 and 11 may be altered as described under "Comments on Use." Routines at P11 may use index registers 01 through 04 without having to save and restore the contents. The contents of the other index registers must be saved and restored.

*Comments on Use:* To delete input records, the following functions must be performed:

1. Increment the counter at `SIHA/` by one.
2. Add the length of the data record being deleted to index register 11.
3. The return to the sort program must be an unconditional branch to `so0r/`.

The exit will be re-entered prior to moving the following record to the Record Storage Area. At least one record must be accepted into the sort.

To insert records into the sort, the following functions must be performed:

1. Increment the counter at `SIHB/` by one.
2. Using an `MRCWR` instruction if the input is in Load mode, or an `MRCR` instruction if in Move mode, move the record from where it is located to the address "0+X8".
3. The return to the sort program must be an unconditional branch to `si95/`.

The exit will be re-entered prior to moving the input record to the Record Storage Area, to enable the insertion of more than one record between records. The user may *alter* or *shorten* records in the input area location specified in index register 11, and return via the next sequential instruction. If variable length records are being shortened, the user must adjust the Record Character-Count field before returning to the sort program.

To *lengthen* records (which requires the use of a work area) or use a work area to shorten or alter records, the following functions must be performed:

1. Using an `MRCWR` instruction if the input is in Load mode, or an `MRCR` instruction if the input is in Move mode, move the record from the address "0+X11" to the work area.
2. If variable length records are being processed, adjust the Record Character-Count of the record being modified.
3. After performing the desired record modification, move the record to the address "0+X8", using the appropriate move operation specified above. If `SIU` input is specified, the input record must be moved

with an `MRCM` or `MRCG` instruction. The record will not have a terminal record mark in the input area. A group mark with word mark will stop the move. When the record is moved into the Record Storage Area, a terminal record mark must be placed on the record.

4. Add the *input* data-record length to index register 11.

5. The return to the sort program must be an unconditional branch to `si95/`.

#### EXIT P12

*Description:* If activated, this exit point occurs immediately after the loading of Phase 1 of a sort and before any assignment routines are executed. It is in core storage only during the assignment portion of Phase 1. Routines at this exit point are entered once, and are executed in line following the preceding instructions.

*Return Linkages:* The return from this exit point should be to the next sequential instruction.

*Linkage Symbols:* Routines at exit point P12 may use linkage symbols `SBS1/`, `SBS2/`, `SOCY/`, and `SOVC/`.

*Required Index Register Conditions:* Routines at P12 may use index registers 01 through 13 without having to save and restore the contents.

*Comments on Use:* This exit point is provided to facilitate execution of user assignment functions for Phase 1 modifications, prior to the execution of the Phase 1 assignment program.

#### EXIT P13

*Description:* Exit P13, if activated, is located in the Phase 1 assignment program at a point where the user may alter the File Table of the input file. Routines at this exit point are entered once, and will reside in core storage only during the execution of the assignment program. The routines are executed in line after the preceding instructions.

*Return Linkages:* The return from this exit point should be to the next sequential instruction.

*Linkage Symbols:* This exit point may refer to linkage symbols `SBS1/`, `SBS2/`, `SOCY/`, `SOVC/`.

*Required Index Register Conditions:* Routines at exit point P13 may use index registers 01 through 13 without having to save and restore the contents.

*Comments on Use:* The user may, at this exit point, modify the File Table, File Table Extension, and `IORW` in the Sort Common area to conform to the input file configuration required for his application. Following exit P13, the Phase 1 assignment program will move the File Table, File Table Extension, and `IORW` to their

respective running program areas. Prior to moving them, but after the exit, the assignment routine will perform the following:

1. A B bit will be placed in Sort Common Field 118 for wrong-length-record checking on fixed-length input.
2. The reel-count field will be moved in from its location in Sort Common.
3. Mode and parity will be set as specified in Sort Common.
4. The File Table Extension address in the File Table will be set.
5. The symbolic unit field will be moved in from Sort Common.
6. The File Table address will be set in the IORW, and the IORW address in the File Table.
7. The input area address will be set in the IORW.

#### EXIT P14

*Description:* This exit point, if activated, is located in the Phase 1 assignment program at a point where the user may alter the File Table to be used for the merge files in Phases 1, 2, and 3 of a sort. Routines at this exit point are entered once and reside in core storage only during execution of the assignment routines. The added programming is executed in line after the preceding instructions.

*Return Linkages:* The return from exit point P14 should be to the next sequential instruction.

*Linkage Symbols:* Routines at exit point P14 may use linkage symbols SBS1/, SBS2/, SOCY/, and SOVC/.

*Required Index Register Conditions:* Routines at exit point P14 may use index registers 01 through 13 without having to save and restore the contents.

*Comments on Use:* The comments on exit point P13, with the exception of item 1, apply to exit point P14 for modifying the File Table, File Table Extension, and IORW in the Sort Common area for the merge files in Phase 1, Phase 2, and Phase 3 of a sort.

### Phase 3 and Merge Program Exit Points

#### EXIT P31

*Description:* This exit point, if activated, is positioned to provide the user access to each data record as it comes out of the merge network in Phase 3 or the merge program. In addition, the previous record to come out of the merge network is still available in the output area. Exit P31 resides in core storage throughout execution of Phase 3 or the merge program. Routines at this exit point are entered for each output data record after the first, and are executed in line after the preceding instructions.

*Return Linkages:* If the current record coming out of the merge network is to be summarized with the preceding record in the output area, the return to the merge should be to linkage symbol SI55/. If not, the return should be to the next sequential instruction.

*Linkage Symbols:* Routines at exit point P31 may use linkage symbols SBS1/, SBS2/, SI55/, SO26/, SO30/, SO65/, SM62/, SO10/, and SOPR/.

*Required Index Register Conditions:* At the time routines at exit P31 are entered, index register 08 contains the address of the high-order position of the next record in the output sequence. Index register 12 contains the address of the high-order position of the previous data record out of the merge network. In a merge program, all index registers must be saved and restored. In a sort program, index registers 02 and 03 may be used without having to save and restore their contents.

*Comments on Use:* This exit point has been provided to enable data records to be summarized. The user may examine each record (other than the first) as it comes out of the merge network, in its proper final sequence, through the use of index register 08, which contains the address of the high-order position. The preceding record in the output file is also available. (The address of its high-order position is in index register 12.) If the current record is to be summarized with the preceding record and deleted, the following steps should be followed:

1. Increment the counter at SO30/ by one.
2. Add the data-record length to the address in index register 08 (sort data-record length if the program is a sort, input data-record length if the program is a merge).
3. Branch unconditionally to SI55/.

To assist in the summarization of equal records, a word mark switch has been provided at the location SM62/. If the control data word of the current record out of the merge is equal to that of the preceding record out, the word mark will have been set by the sequence check in the merge network routine. The word mark, if set, is *not* cleared by the program and the user must provide the coding to clear it after interrogation.

Exit P31 occurs after the sequence check is performed by the program; therefore, the user must be sure that he does not inadvertently alter the sequence of the output file.

#### EXIT P32

*Description:* This exit point, if activated, occurs at the point in Phase 3 or the merge when the record is

about to be moved from the input area to the output area. Routines at this exit point are entered for each input record, and are executed in line after the preceding instructions.

*Return Linkages:* The normal return is to the next sequential instruction. If a record is inserted by routines at this exit, the return should be to so01/. If a record is deleted, either in the input area or the work area, the return should be to si55/. If a record is altered, lengthened, or shortened in the input area, the return should be to so65/. If a user alters a record in his work area instead of the input area, the return should be to si55/.

*Linkage Symbols:* In addition to the return linkage symbols, the added routines may refer to linkage symbols sbs1/, sbs2/, si54/, si55/, si88/, sin5/, sio1/, sio2/, so07/, so10/, soks/, soo8/, and sopr/.

*Required Index Register Conditions:* At the time routines at exit P32 are entered, index register 08 contains the address of the high-order position of the next record in the output sequence. Index register 12 contains the address to which the next output record is to be moved. For a merge, all index registers must be saved and restored. For a sort, the contents of index registers 02 and 03 need not be restored; all the other index registers must be saved and restored.

*Comments on Use:* To insert a fixed-length record into the output file, the user's added routine must perform the following functions:

1. Determine whether or not a record should be inserted at the current point in the output file. If a record should be inserted, perform steps 2, 3, 4, and 5. If a record should not be inserted, branch to the next sequential sort program instruction.

2. Use one of the following two methods to move the record being inserted to the output area:

- a. If the input file was read in the Move mode, use an MRCR instruction to move the record from the user area to "0+X12" in the output area.

- b. If the input file was read in the Load mode, use an MRCWR instruction to move the record from the user area to "0+X12" in the output area.

3. Increment the counter at so26/ by one.

4. Increment the counter at si54/ by one.

5. Return to the sort or merge program via an unconditional branch to so01/. Use of this return enables the sort program to re-enter the exit prior to moving the current low record to the output area. Thus, more than one record can be inserted at the desired point in the output file.

If the output file consists of unblocked, variable-length records, the user's added routine for *inserting*

a variable-length record must perform the following functions:

1. Determine whether or not a record should be inserted at the current point in the output file. If a record should be inserted, perform steps 2, 3, 4, 5, 6, and 7. If a record should not be inserted, branch to the next sequential sort program instruction.

2. Make an unconditional branch to sio1/. The return from this linkage symbol will be to the next sequential added routine instruction after the branch.

3. Use one of the two following methods to move the record being inserted to the output area:

- a. If the input file was read in the Move mode, use an MRCR instruction to move the record from the user area to "0+X12" in the output area.

- b. If the input file was read in the Load mode, use an MRCWR instruction to move the record from the user area to "0+X12" in the output area.

4. Store the B-address register in sio2/.

5. Increment the counter at so26/ by one.

6. Increment the counter at si54/ by one.

7. Return to the sort program via an unconditional branch to sin5/. Use of this return enables the program to re-enter the exit prior to moving the current low record to the output area. Thus, more than one record can be inserted at the desired point in the output file.

If the output file consists of blocked, variable-length records, the user's routine for *inserting* a variable-length record must perform the following functions:

1. Determine whether or not a record should be inserted at the current point in the output file. If a record should be inserted, perform steps 2, 3, 4, 5, 6, 7, and 8. If a record should not be inserted, branch to the next sequential sort program instruction.

2. Add to si88/ the Record Character-Count of the record being inserted.

3. Compare soo8/ with si88/ and branch high to user-written instructions that must:

- a. Subtract the Record Character-Count (of the record to be inserted) from si88/.

- b. Branch unconditionally to so07/.

NOTE: The branch high in step 3 indicates that the record to be inserted could not fit in the current output block. After executing the instructions at so07/, the sort program re-enters exit P32. At this point the current input record is still available to the user's routine.

4. Using an MLNA instruction, move the Record Character-Count of the record being inserted to soks/.

5. Use one of the two following methods to move the record being inserted to the output area:

- a. If the input file was read in the Move mode,



use an `MRCR` instruction to move the record from the user area to the output area located at "0+X12."

- b. If the input file was read in the Load mode, use an `MRCWR` instruction to move the record from the user area to the output area located at "0+X12."

6. Increment the counter at `so26/` by one.

7. Increment the counter at `si54/` by one.

8. Return to the sort or merge program via an unconditional branch to `so01/`. Use of this return enables the program to re-enter the exit prior to moving the current low record to the output area. Thus, more than one record can be inserted at the desired point in the output file.

To *delete* an output record, the user's added routine must perform the following functions:

1. Determine whether or not the record that would normally be the next record in the output file should be deleted. If the record should be deleted, perform steps 2, 3, 4, and 5. If the record should not be deleted, branch to the next sequential sort program instruction.

2. If fixed-length records are being processed, subtract from index register 12 the length of the data record being deleted. If variable-length records are being processed, subtract the contents of `soks/` from index register 12.

3. Increment the counter at `so30/` by one.

4. Add the length of the data record being deleted to index register 08.

5. Return to the sort or merge program via an unconditional branch to `si55/`.

To *lengthen, shorten, or alter* records in a user work area, the user's added routine must perform the following functions:

1. Determine whether or not the current low record in the input area (the record located at "0+X8") should be acted upon. If the record should be acted upon, perform steps 2, 3 (if applicable), 4 (if applicable), 5, 6, 7 (if applicable), 8, and 9. If the record should not be acted upon, branch to the next sequential sort program instruction.

2. Use one of the two following methods to move the record to be acted upon from the input area to the user work area:

- a. If the input file was read in the Move mode, use an `MRCR` instruction to move the record from "0+X8" in the input area to the user work area.
- b. If the input file was read in the Load mode, use an `MRCWR` instruction to move the record from "0+X8" in the input area to the user work area.

3. If variable-length records are being lengthened or shortened, adjust the Record Character-Count of the record in the user work area.

4. If variable-length records are being lengthened, shortened, or altered, perform the following:

- a. Add to `si88/` the Record Character-Count of the record in the user work area.
- b. Compare `soo8/` with `si88/`; branch high to user-written instructions that subtract the Record Character-Count of the record in the user work area from `si88/`, and branch unconditionally to `so07/`.
- c. If the branch high is not taken, use an `MLNA` instruction to move the Record Character-Count of the record in the user work area to `soks/`.

NOTE: The branch high in step 4b indicates that the record to be lengthened, shortened, or altered could not fit in the current output block. After executing the instructions at `so07/`, the sort program re-enters exit P32. At this point the current input record is still available to the user's routine.

5. Perform the desired action on the record in the user work area.

6. Use one of the two following methods to move the record in the user work area to the output area:

- a. If the input file was read in the Move mode, use an `MRCR` instruction to move the record from the user work area to "0+X12" in the output area.
- b. If the input file was read in the Load mode, use an `MRCWR` instruction to move the record from the user work area to "0+X12" in the output area.

7. If the output file consists of unblocked, variable-length records, store the B-address register in `sio2/`.

8. Add the length of the current input record (the length of the record *before* lengthening or shortening in the user's work area) to index register 08.

9. Return to the sort or merge program via a branch to `so65/`.

#### EXIT P33

*Description:* This exit point, if activated, occurs at the end of the sort or merge program and is provided for the user's end-of-program routines. The only instructions after this point are the sort or merge program's end-of-program linkage to the Resident Monitor. The exit point is in core storage throughout execution of Phase 3 and the merge program. Routines at this exit point are entered once, and are executed in line after the preceding instructions.

*Return Linkage:* The only return linkage is to the next sequential instruction.

*Linkage Symbols:* Routines at this exit point may use linkage symbols `sbs1/`, `sbs2/`, `so10/`, and `sopr/`.

*Required Index Register Conditions:* Index registers

01 through 13 may be used without having to save and restore the contents.

*Comments on Use:* Exit point P33 may be used to perform those end-of-program functions desired by the user. If the sort or merge program has been relocated as phases of a larger program, and other phases are to be executed following the program, this exit point must be used to link to the next phase.

#### EXIT P34

*Description:* If activated, this exit point occurs immediately after the loading of a Phase 3 or a merge program, and before any assignment routines are executed. It is in core storage only during the assignment portion of Phase 3 or a merge program. Routines at this exit point are entered once, and are executed in line after the preceding instructions.

*Return Linkages:* The return from this exit point should be to the next sequential instruction.

*Linkage Symbols:* Routines at this exit point may use linkage symbols sbs1/, sbs2/, so10/, and sopr/.

*Required Index Register Conditions:* Routines at exit P34 may use index registers 01 through 13 without having to save and restore their contents.

*Comments on Use:* This exit point is provided to facilitate execution of user assignment functions for Phase 3 of a sort program or for a merge program, prior to execution of the assignment routines.

#### EXIT P35

*Description:* Exit P35 is available only with a merge program. It is located at a point where the user may alter the File Table of each of the merge program input files. Routines at this exit point are entered once per merge program input file, and are executed in line after the preceding instructions. They reside in core storage only during execution of the merge assignment routines.

*Return Linkages:* The return from this exit point should be to the next sequential instruction.

*Linkage Symbols:* Routines at this exit point may use linkage symbols sbs1/, sbs2/, so10/, and sopr/.

*Required Index Register Conditions:* Routines at exit point P35 may use index registers 01 through 04, and 07 through 13 without having to save and restore the contents.

*Comments on Use:* The user may, at this exit point, modify the File Table, File Table Extension, and iorw in the Sort Common area to conform to the merge program input file configuration required for his application. Following exit P35, the Phase 3 assignment routine will move the File Table, File Table Extension, and iorw to the running program areas for each of the merge program input files. Prior to moving the File Table, File Table Extension, and iorw, but after the exit, the assignment routine will effect the following changes:

1. A B bit will be placed in Sort Common Field 118 for wrong-length-record checking on fixed-length input.

2. The reel count field for each of the merge program input files will be moved in from the equivalent fields in Sort Common.

3. Mode and parity will be set as specified in Sort Common.

4. The File Table Extension addresses will be set in each File Table.

5. The symbolic unit fields for each merge program input file will be moved in from Sort Common.

6. The File Table addresses will be set in the iorw's and the iorw addresses in the File Tables.

7. The input area addresses will be set in the iorw's.

#### EXIT P36

*Description:* This exit point, if activated, is located in the Phase 3 and merge program assignment routine at a point where the user may alter the File Table to be used for the final output file of a sort or merge program. Routines at this exit point are entered once and reside in core storage only during execution of the assignment routines. The added programming at exit P36 is executed in line after the preceding instructions.

*Return Linkages:* The return from this exit point should be to the next sequential instruction.

*Linkage Symbols:* Routines at this exit point may use linkage symbols sbs1/, sbs2/, so10/, and sopr/.

*Required Index Register Conditions:* Routines at exit point P36 may use index registers 01 through 13 without having to save and restore the contents.

*Comments on Use:* The comments on exit point P35, with the exception of item 1, apply to exit point P36 for modifying the sort or merge output File Table, File Table Extension, and iorw in the Sort Common area.

The following terms used in this manual are defined here as they pertain to the Generalized Tape Sorting Program of the IBM 1410/7010 Operating System.

**Added Programming:** The area of core storage reserved by the user during some or all of the execution of a sort or merge program; also the instructions or data in the area. It may or may not contain routines to be executed with the program.

**Ascending Sort (or Merge):** A sort (or merge) in which the final sequence of records is such that the control data word of each successive record collates equal to or higher than that of the preceding record.

**Assignment Routine (Program):** A set of instructions that establishes basic constants for use by the sort or merge program, or that modifies and/or initializes generalized running program routines to achieve optimum efficiency for a specific application.

**B (also Bs):** The sort blocking factor.

**Balanced Merge:** A merging operation, within a sorting program, in which each of the two merge files has an equal number of units; during this phase of processing the merge files, the merge orders in successive passes are equal.

**Bi:** The input blocking factor.

**Block:** A group of data records processed as one input or output tape record.

**BL (Block Length):** The total number of characters in a block.

**Bo:** The output blocking factor.

**Checkpoint:** The periodic recording of certain contents of core storage and any other information necessary to provide a point from which the program can be restarted.

**Collating Sequence:** The relative order of characters upon which a sort or merge is based. The 1410/7010 Generalized Tape Sorting program uses the standard BCD collating sequence.

**Control Data Field:** A continuous group of characters, within a data record, that forms part or all of the control data word. A maximum of ten control data fields, of 999 characters each, is permitted by the program.

**Control Data Word:** A group of characters consisting of one or more control data fields in proper major/minor order. The sort of the data records will be based on the collating sequence as applied to these characters.

**CW:** The number of characters in a control data word.

**Descending Sort (or Merge):** A sort (or merge) in which the final sequence of records is such that the control data word of each successive record collates equal to or lower than that of the preceding record.

**File:** A collection of related data records contained on one or more reels of tape.

**File Size:** The total number of records contained in a file. Also the total number of records processed in one execution of the sort program. Often represented by N.

**Fixed-Length Records:** Records belonging to a file in which all the records have the same number of characters.

**G:** The number of data records that can be contained at one time in the Record Storage Area of an internal sort.

**Input Blocking Factor:** The number of data records in each data tape record in the input file. Abbreviated as "Bi".

**Input File(s), Sort (or Merge) Program:** A collection of related data records introduced as input to the sort (or merge) program. A sort program will have one input file; a merge program may have one to eight input files. An input file may be contained on one or more reels of magnetic tape (for a sort, the total number of records contained in the input file should not be more than the total number of records that can fit on  $m - 1$  reels at sort blocking).

**Internal Sort:** The sequencing of a group of data records contained in core storage at one time, according to the collating sequence values of their respective control data words.

**IOCS:** Input/Output Control System.

**IORW:** Input/Output Request Word. A control field used by the IOCS program.

**m:** Merge order.

**Major Control Data Field:** The most significant (in determining the output file sequence) control data field in a data record.

**Merge:** The process by which several sequences of data records are collated to form one sequence. Also a program or routine that performs the process.

**Merge File:** One of the two partially sequenced files being processed as input or output from a merge pass.

**Merge Order (Order of Merge):** The number of files or sequences that will be combined during a merging operation. Abbreviated as "m".

**Merge Pass:** The processing of all the records in a sort program, one time through the merge, from one merge file to the other.

**Minor Control Data Fields:** The control data fields, other than the major control data field, in the control data word. Considered in decreasing order of significance.

**Modification, User:** Added programming consisting of routines to be executed during a sort or merge program.

**Module:** A relocatable subprogram.

**N:** File size.

**NMAX:** The maximum number of data records that can be sorted, based on the information supplied in the control cards.

**Order of Merge:** See Merge Order.

**Output Blocking Factor:** The number of data records in each data tape record in the output file. Abbreviated as "Bo".

**Output File:** The collection of all the data records processed by the sort or merge program and arranged in collating sequence based upon the control data fields specified. May be contained on one or more reels of tape.

**Phase:** A portion of the sort or merge program executed as one core-storage load.

**Record Storage Area:** The core-storage area in which the data records are stored while being processed by the internal sort. Abbreviated as "RSA".

**Replacement Sort:** An internal sorting technique in which the lowest record in the Record Storage Area is determined, removed, and replaced with the next record from the input file. The new lowest record is then determined, and the process continues until the entire input file has been processed.

RSA: Record Storage Area.

Running Program: The portion of each phase that actually performs the sorting or merging operations on the data file. The running program routines are initialized and/or modified by the assignment routines to execute specific sort or merge application with optimum efficiency.

Sequence: A group of data records whose control data fields are in the desired order according to the collating sequence. The length of each sequence can be one or more data records. Within the merge files, sequence breaks may only occur between blocks of records. Each sequence may, however, consist of several blocks. A *high degree of sequencing* of the input file is said to exist if within each segment all or most of the respective characters sorted on are within a relatively limited range of numbers, though not necessarily in order.

Sort: A process by which a file of data records is sequenced according to the collating-sequence value of the respective control data words of the records. There are several types of sorts, differentiated by the method by which the sequencing is performed.

Also, a program that performs the process. Merge passes may be included in the process.

Sort/Merge: A descriptive term meaning "sort and/or merge." Frequently used in connection with generalized program from which types of sort or merge programs may be defined.

Sort Blocking Factor: The number of data records in each data tape record, as blocked for sorting. Abbreviated "B" or "Bs".

Tag: A field that contains an address referring to a specific data record in core storage.

Unbalanced Merge: A merging operation, within a sorting program, in which each of the two files has a different number of units; during this phase of processing the merge files, the merge orders for alternate passes (i.e., every other pass) are equal.

Variable-Length Records: Records belonging to a file in which the number of characters in each record is not a fixed value, but may vary between prescribed limits.

### Terms and Symbols

The following terms are used in the Timing Formulas and Timing Tables:

Bi: Input blocking factor

Bo: Output blocking factor

Bs: Sort blocking factor

CF<sub>x</sub>: Length of the x-th control data field

CK: Record check time

CN: Tape character rate

CW;CWLNG: Control data word length. Total length of the control data fields

ei: Percentage of equal results on the comparison of the i-th control data fields

Fx: Number of comparisons made per record in Phase x

G: Replacement order. The number of data records that can be contained in the Phase 1 Record Storage Area at one time

I: IOCS process time per tape record

L: Data-record length

MAXIMUM NUMBER OF RECORDS IN THOUSANDS:

The maximum number of data records that can be sorted at the character densities associated with 7330, 729 II, 729 IV, and 729 VI tape units. It is assumed that all merge tapes are full reels.

MFS: Maximum file size

MRG ORD;mx: Merge order, Phase x

Mx: Core storage available for the sort program, Phase x. This is equivalent to the core-storage size minus the size of the Resident Monitor minus the size of the Tele-processing Supervisor, if present, and minus any core storage required by added programming.

N: File size

NO. CF: Number of control data fields

p: Number of Phase 2 passes required

PROCESS TIME PH 1, PH 2, PH 3: Process time for Phase 1, each pass of Phase 2, and Phase 3, respectively, in milliseconds per data record.

Px: Running program size, Phase x

R: Rewind time

Sl: Phase 1 output sequence length

Sr: Tape start time to read

Sw: Tape start time to write

TAPE TIME 7330, 729 II, 729 IV, 729 VI: Tape time for 7330, 729 II, 729 IV, and 729 VI tape units, respectively, in milliseconds per data record. Tape timing values are based on the following densities: 7330, 729 II, 729 IV — 556 cpi. 729 VI — 800 cpi. (Tape timing values for 729 V at 556 c. p. i. are equivalent to those listed for 729 II.)

Tx: Time per record in milliseconds, Phase x.

[ ]: Square brackets indicate that the integer portion of the computed value within the brackets should be taken; i. e., rounded to the next lower whole number.

### Timing Formulas

The following timing formulas are provided to enable the user to estimate sorting times for data record files, or make formula assumptions not included in the timing tables.

The execution time for sorts involving variable-length data records may be estimated by using a value for L equal to the average data-record length.

Merge program times may be estimated by using the computed Phase 3 times, substituting input blocking (Bi) for sort blocking (Bs), and substituting the appropriate value of R.

These formulas assume that the program has not been modified by the user's added programming. The inclusion of modification routines will increase the total execution time by the amount of time required to execute the modification routines plus an indeterminate amount of sort process time; the latter depends on the nature of the routines added.

#### Application of Timing Formulas

The following steps should be taken to compute the sorting time for a given application. The tables at the end of this section provide values for the various constants in the formulas.

1. Calculate the values of Bs and G.
2. With the values of Bs and G, calculate T1, T2, and T3.
3. If the application has multiple control data fields, add the necessary time for the equals routine.
4. Calculate the number of Phase 1 output sequences.
5. Calculate the number of Phase 2 passes required.
6. Calculate the total sorting time in minutes from the following formula:

$$\text{TOTAL TIME} = \frac{N}{60,000} (T1 + pT2 + T3) + R \text{ (in minutes)}$$

#### Calculation of Bs and G

Assuming that there is sufficient space for two input areas for each file in each phase, Bs is calculated for each phase by the following formulas:

$$\text{Phase 1} \quad Bs = \left[ \frac{6000}{L} \right]$$

$$\text{Phase 2} \quad Bs = \left[ \frac{M2 - P2}{2(m2 + 1)L} \right]$$

$$\text{Phase 3} \quad Bs = \left[ \frac{M3 - P3 - 2BoL}{2(m3)L} \right]$$

The minimum of the above values of Bs is chosen as the maximum value for Bs with two input areas for each file. If the value of Bs is less than 1, or if Bs × L is less than 1,500, Bs is recalculated, assuming only one alternate area for input.

For one alternate area Bs is calculated as follows:

$$\begin{aligned} \text{Phase 1} & \quad \text{unchanged} \\ \text{Phase 2} & \quad B_s = \left[ \frac{M_2 - P_2}{(m_2 + 3)L} \right] \\ \text{Phase 3} & \quad B_s = \left[ \frac{M_3 - P_3 - 2BoL}{(m_3 + 1)L} \right] \end{aligned}$$

The minimum of the above values of Bs is chosen as the maximum value for Bs with one alternate input area. If the value of Bs from the above calculation is used, Phase 2 and Phase 3 will use a Look Ahead routine to determine which input area will empty first so the alternate can be filled from the same file. If the above value of Bs is less than 1, the calculation is made assuming no alternate input areas.

For no alternate areas, Bs is calculated as follows:

$$\begin{aligned} \text{Phase 1} & \quad B_s = \left[ \frac{9989}{L} \right] \\ \text{Phase 2} & \quad B_s = \left[ \frac{M_2 - P_2}{(m_2 + 2)L} \right] \\ \text{Phase 3} & \quad B_s = \left[ \frac{M_3 - P_3 - 2BoL}{m_3L} \right] \end{aligned}$$

The minimum value of Bs as calculated above is chosen as the maximum value for Bs. If this value is less than 1, the sort cannot proceed.

When a suitable value of Bs is found, G is determined as follows:

$$\begin{aligned} 1. \quad G &= \left[ \frac{M_1 - P_1 - 2L(B_i + B_s)}{L + 10} \right] \\ & \quad \text{reduced to the next even value, if odd, or} \\ 2. \quad G &= \left[ \frac{M_1 - P_1 - L(B_i + B_s)}{L + 10} \right] \\ & \quad \text{reduced to the next even value, if odd.} \end{aligned}$$

1 is used if input can be overlapped with processing; otherwise 2 is used.

Values of Px for the above calculations of Bs and G can be found in Figure 32.

#### Phase 1 Time (T1) Calculation

$$\begin{aligned} \text{a. 1410 PROCESS TIME} &= \\ & 1.06 \log_2 G (.827 + .0071CW) + .01CW \\ & + .0334L + 1.586 + \frac{2.032}{B_i} + \frac{1.08}{B_s} + \frac{1.462}{S_i} \\ \text{7010 PROCESS TIME} &= \\ & 1.1 \log_2 G (.2477 + .00224CW) + .0031CW \\ & + .0088L + .463 + \frac{1.375}{B_i} + \frac{1.053}{B_s} + \frac{.504}{S_i} \end{aligned}$$

$$\text{b. INPUT TIME} = \frac{S_r}{B_i} + (CN)L$$

$$\text{c. OUTPUT TIME} = \frac{S_w}{B_s} + (CN)L$$

1. If one channel is used for the sort, and input is overlapped with processing:

$$\begin{aligned} T_1 &= \text{greatest value of } [a \text{ or } (b + c)] \\ & + \frac{I}{B_i} + \frac{I}{B_s} + \frac{(CK)}{B_s} \end{aligned}$$

2. If one channel is used for the sort, and input is *not* overlapped with processing:

$$\begin{aligned} T_1 &= \text{greatest value of } [(a + b) \text{ or } (b + c)] \\ & + \frac{I}{B_i} + \frac{I}{B_s} + \frac{(CK)}{B_s} \end{aligned}$$

3. If two channels are used for the sort, and input is overlapped with processing:

$$\begin{aligned} T_1 &= \text{greatest value of } (a, b, \text{ or } c) + \frac{I}{B_i} + \frac{I}{B_s} \\ & + \frac{(CK)}{B_s} \end{aligned}$$

4. If two channels are used for the sort, and input is *not* overlapped with processing:

$$\begin{aligned} T_1 &= \text{greatest value of } (a \text{ or } c) + b + \frac{I}{B_i} \\ & + \frac{I}{B_s} + \frac{(CK)}{B_s} \end{aligned}$$

Sr, Sw, CN, and CK can be found in Figure 27. (CK applies to the 1410 only.) log<sub>2</sub>G can be found in Figure 28. Si can be found in Figure 35. I is given in Figure 31.

#### Phase 2 Time (T2) Calculation

$$\begin{aligned} \text{a. 1410 PROCESS TIME} &= \text{Merge Time} + .0217L \\ & + .667 + \frac{3.480}{B_s} + \frac{1.820}{S_i} \end{aligned}$$

$$\begin{aligned} \text{7010 PROCESS TIME} &= \text{Merge Time} + .188 \\ & + .0057L + \frac{2.709}{B_s} + \frac{.5042}{S_i} \end{aligned}$$

$$\text{b. INPUT TIME} = \frac{S_r}{B_s} + (CN)L$$

$$\text{c. OUTPUT TIME} = \frac{S_w}{B_s} + (CN)L$$

1. If one channel is used for the sort, and input is overlapped with processing:

$$\begin{aligned} T_2 &= \text{greatest value of } [a \text{ or } (b + c)] \\ & + \frac{2I}{B_s} + \frac{(CK)}{B_s} + \frac{\text{Look Ahead Time}}{B_s} \end{aligned}$$

2. If one channel is used for the sort, and input is *not* overlapped with processing:

$$T2 = \text{greatest value of } [(a + b) \text{ or } (b + c)] \\ + \frac{2I}{Bs} + \frac{(CK)}{Bs} + \frac{\text{Look Ahead Time}}{Bs}$$

3. If two channels are used for the sort, and input is overlapped with processing:

$$T2 = \text{greatest value of } (a, b, \text{ or } c) + \frac{2I}{Bs} \\ + \frac{(CK)}{Bs} + \frac{\text{Look Ahead Time}}{Bs}$$

4. If two channels are used for the sort, and input is *not* overlapped with processing:

$$T2 = \text{greatest value of } (a \text{ or } c) + b + \frac{2I}{Bs} + \frac{(CK)}{Bs}$$

Sr, Sw, CN, and CK can be found in Figure 27 (CK applies to 1410 only). Merge Time can be found in Figure 29. Look Ahead time is included if there are  $m + 1$  input areas; see Figure 33. Sl can be found in Figure 35. I is given in Figure 31.

### Number of Phase 2 Passes (p)

$$p = \left[ \log_m \left( \frac{N}{SI} \right) + 1 \right] - 1$$

Figure 33 contains values of p for various merge orders.

### Phase 3 Time (T3) Calculation

$$\text{a. 1410 PROCESS TIME} = \text{Merge Time} + .0215L \\ + .623 + \frac{1.270}{Bo} + \frac{2.140}{Bs} + \frac{.173 + .010CW}{m3}$$

$$\text{7010 PROCESS TIME} = \text{Merge Time} + .0057L \\ + \frac{1.424}{Bs} + \frac{.101}{Bo} + .88 + \frac{.053 + .003CW}{m3}$$

$$\text{b. INPUT TIME} = \frac{Sr}{Bs} + (CN)L$$

$$\text{c. OUTPUT TIME} = \frac{Sw}{Bo} + (CN)L$$

1. If one channel is used for the sort or merge, and input is overlapped with processing:

$$T3 = \text{greatest value of } [a \text{ or } (b + c)] + \frac{I}{Bs} \\ + \frac{I}{Bo} + \frac{(CK)}{Bo} + \frac{\text{Look Ahead Time}}{Bs}$$

2. If one channel is used for the sort or merge, and input is *not* overlapped with processing:

$$T3 = \text{greatest value of } [(a + b) \text{ or } (b + c)] \\ + \frac{I}{Bs} + \frac{I}{Bo} + \frac{(CK)}{Bs} + \frac{\text{Look Ahead Time}}{Bs}$$

3. If two channels are used for the sort or merge, and input is overlapped with processing:

$$T3 = \text{greatest value of } (a \text{ or } c) + b + \frac{I}{Bs} + \frac{I}{Bo} \\ + \frac{(CK)}{Bo} + \frac{\text{Look Ahead Time}}{Bs}$$

4. If two channels are used for the sort or merge, and input is *not* overlapped with processing:

$$T3 = \text{greatest value of } (a \text{ or } b) + c + \frac{I}{Bs} + \frac{I}{Bo} \\ + \frac{(CK)}{Bo}$$

Sr, Sw, CN, and CK can be found in Figure 27. Merge Time can be found in Figure 29. Look Ahead time is included if there are  $m + 1$  input areas; see Figure 34. I is given in Figure 31.

### Equals Routine

When multiple control data fields are specified to the sort, and more than one control data field has to be compared to determine the proper sequencing of the records, the added time is computed as follows:

1410 ADDED TIME =

$$Fx(e1(.5224 + .009CF2 + e2(.159 + .009CF3 \\ + e3(.159 + .009CF4 + e4(\dots \\ + e9(.159 + .009CF10) \dots))))))$$

7010 ADDED TIME =

$$Fx(e1(.1507 + .0028CF2 + e2(.0484 + .0028CF3 \\ + e3(.0484 + .0028CF4 + e4(\dots \\ + e9(.0484 + .0028CF10) \dots))))))$$

NOTE: This time is added to Process Time for each phase.

F1 =  $\log_2 G + 1$  ( $\log_2 G$  can be obtained from Figure 28).

F2 and F3 can be obtained from Figure 30.

### Rewind Time (R) in Minutes

$$R = p(K) + 1$$

For the majority of sorting applications using IBM 729 II, 729 IV, or 729 VI Magnetic Tape Units, K is equal to 1. For sorting applications of relatively low volume, set K equal to  $\frac{1}{2}$ .

For the majority of sorting applications using IBM 7330 Magnetic Tape Units, set K equal to 2. For low-volume applications using 7330 tape units, set K equal to 1.

TYPE	7330		729 II		729 IV		729 VI		
	200	556	200	556	200	556	200	556	800
DENSITY	200	556	200	556	200	556	200	556	800
Sr	20.5	20.5	10.7	10.7	11.7	7.1	7.1	7.1	7.1
Sw	20.3	20.3	11.7	11.7	11.7	7.8	7.8	7.8	7.8
CN	.139	.050	.067	.024	.044	.016	.044	.016	.011
CK*	9.3	8.7	4.6	4.2	3.0	2.8	3.0	2.8	2.8

NOTE 1: \* Record check time does not apply to the 7010 or a 1410 with the accelerator feature.  
For the 1410 record check time is used for write operations only.  
NOTE 2: All values are from the publication IBM 1410 Principles of Operation, Form A22-0526.

Figure 27. Tape Timing (in Milliseconds)

G	log <sub>2</sub> G
2	1
4	2
8	3
16	4
32	5
64	6
128	7
256	8
512	9
1024	10

	1
1410	2.93
7010	.925

Figure 31. iocs Process Time (in Milliseconds per Block)

Figure 28. Log<sub>2</sub>G per Value of G

Phase	Px
1	3800
2	6000
3	5000

Figure 32. Approximate Running Program Sizes (Px) (in Positions of Core Storage)

MRG ORD	1410	MERGE TIME	7010
1	0		0
2	.357 + .010CW		.110 + .003CW
3	.567 + .016CW		.174 + .005CW
4	.682 + .019CW		.211 + .006CW
5	.800 + .023CW		.250 + .007CW
6*	.905 + .025CW		.279 + .008CW
7*	.971 + .027CW		.304 + .009CW
8*	1.042 + .029CW		.325 + .009CW

\*Merge program only.

Figure 29. 1410/7010 Merge Time for Phases 2 and 3 (in Milliseconds per Record)

MRG ORD	F2	F3
1	0	1.0
2	1.0	1.5
3	1.66	2.0
4	2.0	2.25
5	2.4	2.6
6	---	2.833
7	---	3.0
8	---	3.125

Figure 30. Average Number of Comparisons per Record for Phases 2 and 3 (F2 and F3)

Number of Phase	Number of Sequences (S) for Merge Order of:			
	Two	Three	Four	Five
0 (Skip Phase 2)	2	3	4	5
1	4	9	16	25
2	8	27	64	125
3	16	81	256	625
4	32	243	1,024	3,125
5	64	729	4,096	15,625
6	128	2,187	16,384	
7	256			
8	512			
9	1,024			
10	2,048			
11	4,096			

NOTE: Number of Sequences (S) =  $\frac{N}{S!}$

Figure 33. Number of Phase 2 Merging Passes (p)



MRG ORD	1410	7010
1	0	0
2	1.024 + .009CW	.330 + .0028CW
3	1.518 + .015CW	.490 + .0046CW
4	1.862 + .018CW	.610 + .0056CW
5	2.211 + .022CW	.711 + .0672CW
6	2.519 + .024CW	.812 + .00745CW
7	2.823 + .026CW	.911 + .00803CW
8	3.118 + .027CW	1.006 + .00842CW

Figure 34. Look Ahead Times (in Milliseconds per Block)

Sequencing of Input File	Output Sequence Length (SI)
Inverse	G
Random	2G
In Sequence	N

Figure 35. Phase 1 Output Sequence Length (SI)

## Timing Tables

### General Description

The timing tables in the following pages provide a convenient means of estimating total sort execution time. The tables are for fixed-length data records ranging from 20 to 2,000 characters in length.

The terms used in the tables are defined in the "Terms and Symbols" section of this Appendix.

### BASIC ASSUMPTIONS IN TIMING TABLE COMPUTATIONS

The following assumptions were made in deriving the values in the timing tables:

1. The program is operating with a Resident Monitor and the iocs, requiring 11,500 positions of core storage. The remainder of core storage is available to the program.
2. Input and output blocking factors are equal to the sort blocking factor.
3. Where five control data fields are specified, the lengths of the five fields are equal. In sequencing any two data records, the number of control data fields that must be compared to determine the correct sequence can be one, two, three, four, or five, with equal probabilities. Therefore, the average number of control data characters compared is .6CW.
4. The input file is in random order.
5. The file consists of fixed-length data records. Sorting time for variable-length data records can be approximated by taking the table values for the average data-record length in the file.

### TIMING FORMULAS

The timing formulas used to derive the values in the tables are functions of the data-record length and the length of the control data word. For purposes of estimating sort times, these functions can be regarded as linear; therefore, the values for any specific application not found in the tables, but within the published ranges, can be estimated from given values by interpolation.

### METHOD OF TIME ESTIMATION USING TIMING TABLES

The procedure for using the tables to calculate total sorting time for a particular application is as follows:

1. Enter the tables with core-storage size, data-record length, control data word length and number of control data fields to obtain values for Process Time, Tape Time, and G.
2. Determine the running time per record in milliseconds for each phase as follows:
  - a. Phase 1 running time, T1, equals Phase 1 Process Time or Phase 1 Tape Time, whichever is greater.
  - b. Phase 2 running time, T2, equals Phase 2 Process Time or Phase 2 Tape Time, whichever is greater.
  - c. Phase 3 running time, T3, equals Phase 3 Process Time or Phase 3 Tape Time, whichever is greater.
3. Determine the number of sequences (S) produced by Phase 1.

$$S = \frac{N}{\text{Sequence Length}}$$

where N equals the total number of records to be sorted.

Since the internal sort used in Phase 1 is the replacement type, the average sequence length produced for a random file is equal to 2G. If, however, it is known that the input file is in some order other than random, a different value for the sequence length may be used, ranging from G for an inverse sequence to N for a file previously sequenced. For example, if the order is known to be such that the average output sequence length is four times the number of records internally sorted, the formula would be  $S = \frac{N}{4G}$ .

4. Determine the number of Phase 2 passes (p). For the merge order to be used, enter Figure 33 with the value of S which is equal to or greater than the value calculated above.
5. Calculate total sorting time in minutes.

$$T = \frac{N}{60,000}(T1 + pT2 + T3) + R$$

R is an estimated time, in minutes, for program load-

ing, housekeeping, and tape rewinding. Its value is obtained from the following expression:

$$R = p(K) + 1$$

For the majority of sorting applications using IBM 729 II, 729 IV, or 729 VI Magnetic Tape Units, K is equal to 1. For sorting applications of relatively low volume, set K equal to ½.

For the majority of sorting applications using IBM 7330 Magnetic Tape Units, set K equal to 2. For low-volume applications using 7330 tape units, set K equal to 1.

Example:

Given: IBM 1410 with 40,000 positions of core storage:

N = 100,000.

L = 80.

Number of control data fields (CF) = 1.

Control data word length (CWLNG) = 10.

Order of merge = 4.

Input is in random sequence.

729 IV tape units (2 channels) are used.

Input blocking = sort blocking = output blocking.  
Time per record in milliseconds:

	PROCESS TAPE	
PH 1 =	11.97	1.78
PH 2 =	3.82	1.78
PH 3 =	3.85	1.78

Number of Phase 2 Passes:

$$S = \frac{100,000}{344} = 291(\text{number of sequences produced by Phase 1})$$

From Figure 33, Phase 2 requires four passes.

Total Time per Record in Milliseconds:

$$\text{Time/Record} = 11.97 + 4(3.82) + 3.85 = 31.10$$

Total Sorting Time in Minutes:

$$T = \frac{100,000 \times 31.10}{60,000} + R$$

$$T = 51.8 + 4(1) + 1$$

$$T = 56.8 \text{ minutes}$$

Listings

20 CHARACTER DATA RECORD 40K 1410

CW LNG	MRG ORD	NO. CF	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF				
			B	G	MILLISECONDS/RECORD	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI
5	2	1	183	318	9.98	1.55	1.65	1.14	.57	.39	.29	265	688	948
		5	183	318	17.77	2.38	2.89	1.14	.57	.39	.29	265	688	948
	3	1	137	440	10.43	1.83	1.88	1.19	.60	.41	.31	523	1331	1811
		5	137	440	18.61	3.14	3.47	1.19	.60	.41	.31	523	1331	1811
	4	1	110	512	10.66	1.98	2.02	1.23	.63	.44	.34	775	1935	2602
		5	110	512	19.02	3.64	3.89	1.23	.63	.44	.34	775	1935	2602
5	1	91	564	10.81	2.15	2.18	1.28	.67	.47	.37	1019	2497	3321	
	5	91	564	19.29	4.08	4.27	1.28	.67	.47	.37	1019	2497	3321	

30 CHARACTER DATA RECORD 40K 1410

CW LNG	MRG ORD	NO. CF	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF				
			B	G	MILLISECONDS/RECORD	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI
5	2	1	122	238	9.97	1.81	1.90	1.71	.86	.59	.44	176	459	632
		5	122	238	17.41	2.64	3.15	1.71	.86	.59	.44	176	459	632
	3	1	91	332	10.45	2.10	2.15	1.78	.91	.63	.48	348	887	1206
		5	91	332	18.29	3.41	3.74	1.78	.91	.63	.48	348	887	1206
	4	1	73	386	10.69	2.27	2.31	1.86	.96	.66	.51	516	1289	1733
		5	73	386	18.71	3.93	4.17	1.86	.96	.66	.51	516	1289	1733
5	1	61	422	10.85	2.46	2.48	1.93	1.00	.70	.55	680	1666	2217	
	5	61	422	18.97	4.38	4.56	1.93	1.00	.70	.55	680	1666	2217	

40 CHARACTER DATA RECORD 40K 1410

CW LNG	MRG ORD	NO. CF	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF				
			B	G	MILLISECONDS/RECORD	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI
5	2	1	91	192	10.06	2.08	2.16	2.28	1.15	.79	.59	132	344	473
		5	91	192	17.24	2.90	3.41	2.28	1.15	.79	.59	132	344	473
	3	1	68	266	10.55	2.38	2.43	2.38	1.21	.84	.64	261	665	904
		5	68	266	18.12	3.69	4.01	2.38	1.21	.84	.64	261	665	904
	4	1	55	308	10.79	2.56	2.59	2.47	1.27	.88	.68	387	967	1301
		5	55	308	18.54	4.22	4.46	2.47	1.27	.88	.68	387	967	1301
5	1	45	340	10.98	2.76	2.78	2.58	1.35	.94	.74	509	1245	1656	
	5	45	340	18.85	4.68	4.87	2.58	1.35	.94	.74	509	1245	1656	

50 CHARACTER DATA RECORD 40K 1410

CW LNG	MRG ORD	NO. CF	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF RECORDS IN THOUSANDS					
			B	G	MILLISECONDS/RECORD PH1 PH2 PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI			
5	2	1	73	160	10.20	2.34	2.42	2.86	1.44	.98	.73	106	275	379	
		5	73	160	17.15	3.16	3.66	2.86	1.44	.98	.73	106	275	379	
	3	1	55	220	10.68	2.65	2.69	2.97	1.51	1.04	.79	209	533	725	
		5	55	220	18.02	3.96	4.28	2.97	1.51	1.04	.79	209	533	725	
	4	1	44	256	10.95	2.85	2.88	3.09	1.59	1.11	.86	310	774	1040	
		5	44	256	18.47	4.51	4.74	3.09	1.59	1.11	.86	310	774	1040	
	5	1	36	282	11.15	3.07	3.08	3.23	1.68	1.17	.92	407	996	1324	
		5	36	282	18.79	4.99	5.17	3.23	1.68	1.17	.92	407	996	1324	
	10	2	1	73	160	10.52	2.38	2.49	2.86	1.44	.98	.73	106	275	379
			5	73	160	17.44	3.20	3.72	2.86	1.44	.98	.73	106	275	379
3		1	55	220	11.03	2.73	2.79	2.97	1.51	1.04	.79	209	533	725	
		5	55	220	18.33	4.02	4.35	2.97	1.51	1.04	.79	209	533	725	
4		1	44	256	11.30	2.95	2.98	3.09	1.59	1.11	.86	310	774	1040	
		5	44	256	18.78	4.58	4.82	3.09	1.59	1.11	.86	310	774	1040	
5		1	36	282	11.51	3.18	3.21	3.23	1.68	1.17	.92	407	996	1324	
		5	36	282	19.11	5.07	5.26	3.23	1.68	1.17	.92	407	996	1324	
20		2	1	73	160	11.18	2.48	2.63	2.86	1.44	.98	.73	106	275	379
			5	73	160	18.02	3.27	3.83	2.86	1.44	.98	.73	106	275	379
	3	1	55	220	11.72	2.89	2.98	2.97	1.51	1.04	.79	209	533	725	
		5	55	220	18.94	4.13	4.49	2.97	1.51	1.04	.79	209	533	725	
	4	1	44	256	12.01	3.14	3.20	3.09	1.59	1.11	.86	310	774	1040	
		5	44	256	19.41	4.73	4.99	3.09	1.59	1.11	.86	310	774	1040	
	5	1	36	282	12.22	3.41	3.45	3.23	1.68	1.17	.92	407	996	1324	
		5	36	282	19.74	5.25	5.45	3.23	1.68	1.17	.92	407	996	1324	
	40	2	1	73	160	12.49	2.67	2.92	2.86	1.44	.98	.73	106	275	379
			5	73	160	19.18	3.42	4.05	2.86	1.44	.98	.73	106	275	379
3		1	55	220	13.09	3.21	3.36	2.97	1.51	1.04	.79	209	533	725	
		5	55	220	20.16	4.37	4.78	2.97	1.51	1.04	.79	209	533	725	
4		1	44	256	13.42	3.52	3.63	3.09	1.59	1.11	.86	310	774	1040	
		5	44	256	20.67	5.02	5.32	3.09	1.59	1.11	.86	310	774	1040	
5		1	36	282	13.66	3.88	3.95	3.23	1.68	1.17	.92	407	996	1324	
		5	36	282	21.02	5.59	5.82	3.23	1.68	1.17	.92	407	996	1324	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF RECORDS IN THOUSANDS					
			B	G	MILLISECONDS/RECORD PH1 PH2 PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI			
5	2	1	61	136	10.36	2.60	2.68	3.43	1.72	1.18	.88	88	229	316	
		5	61	136	17.12	3.42	3.92	3.43	1.72	1.18	.88	88	229	316	
	3	1	45	190	10.88	2.93	2.97	3.58	1.83	1.26	.96	174	443	602	
		5	45	190	18.05	4.24	4.56	3.58	1.83	1.26	.96	174	443	602	
	4	1	36	222	11.17	3.15	3.17	3.73	1.92	1.33	1.03	258	643	864	
		5	36	222	18.52	4.80	5.04	3.73	1.92	1.33	1.03	258	643	864	
	5	1	30	242	11.36	3.37	3.38	3.87	2.02	1.41	1.11	339	830	1104	
		5	30	242	18.82	5.29	5.47	3.87	2.02	1.41	1.11	339	830	1104	
	10	2	1	61	136	10.68	2.64	2.75	3.43	1.72	1.18	.88	88	229	316
			5	61	136	17.40	3.46	3.97	3.43	1.72	1.18	.88	88	229	316
3		1	45	190	11.22	3.01	3.07	3.58	1.83	1.26	.96	174	443	602	
		5	45	190	18.34	4.30	4.63	3.58	1.83	1.26	.96	174	443	602	
4		1	36	222	11.51	3.24	3.28	3.73	1.92	1.33	1.03	258	643	864	
		5	36	222	18.83	4.88	5.12	3.73	1.92	1.33	1.03	258	643	864	
5		1	30	242	11.71	3.49	3.51	3.87	2.02	1.41	1.11	339	830	1104	
		5	30	242	19.13	5.38	5.56	3.87	2.02	1.41	1.11	339	830	1104	
20		2	1	61	136	11.31	2.74	2.89	3.43	1.72	1.18	.88	88	229	316
			5	61	136	17.96	3.53	4.08	3.43	1.72	1.18	.88	88	229	316
	3	1	45	190	11.89	3.17	3.26	3.58	1.83	1.26	.96	174	443	602	
		5	45	190	18.94	4.42	4.77	3.58	1.83	1.26	.96	174	443	602	
	4	1	36	222	12.20	3.43	3.49	3.73	1.92	1.33	1.03	258	643	864	
		5	36	222	19.44	5.02	5.28	3.73	1.92	1.33	1.03	258	643	864	
	5	1	30	242	12.41	3.72	3.75	3.87	2.02	1.41	1.11	339	830	1104	
		5	30	242	19.75	5.55	5.75	3.87	2.02	1.41	1.11	339	830	1104	
	40	2	1	61	136	12.58	2.93	3.18	3.43	1.72	1.18	.88	88	229	316
			5	61	136	19.09	3.68	4.30	3.43	1.72	1.18	.88	88	229	316
3		1	45	190	13.24	3.49	3.64	3.58	1.83	1.26	.96	174	443	602	
		5	45	190	20.14	4.65	5.06	3.58	1.83	1.26	.96	174	443	602	
4		1	36	222	13.58	3.82	3.92	3.73	1.92	1.33	1.03	258	643	864	
		5	36	222	20.66	5.32	5.61	3.73	1.92	1.33	1.03	258	643	864	
5		1	30	242	13.81	4.18	4.25	3.87	2.02	1.41	1.11	339	830	1104	
		5	30	242	20.99	5.89	6.12	3.87	2.02	1.41	1.11	339	830	1104	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF					
			B	G	MILLISECONDS/RECORD PH1 PH2 PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI			
5	2	1	52	120	10.57	2.86	2.93	4.00	2.01	1.38	1.03	75	196	270	
		5	52	120	17.18	3.69	4.18	4.00	2.01	1.38	1.03	75	196	270	
	3	1	39	166	11.09	3.20	3.24	4.17	2.13	1.47	1.12	149	380	517	
		5	39	166	18.09	4.51	4.83	4.17	2.13	1.47	1.12	149	380	517	
	4	1	31	194	11.39	3.43	3.45	4.34	2.24	1.56	1.21	221	551	741	
		5	31	194	18.58	5.09	5.32	4.34	2.24	1.56	1.21	221	551	741	
	5	1	26	210	11.58	3.67	3.68	4.51	2.35	1.64	1.29	291	713	948	
		5	26	210	18.87	5.59	5.77	4.51	2.35	1.64	1.29	291	713	948	
	10	2	1	52	120	10.88	2.91	3.01	4.00	2.01	1.38	1.03	75	196	270
			5	52	120	17.45	3.72	4.23	4.00	2.01	1.38	1.03	75	196	270
3		1	39	166	11.42	3.28	3.33	4.17	2.13	1.47	1.12	149	380	517	
		5	39	166	18.38	4.57	4.90	4.17	2.13	1.47	1.12	149	380	517	
4		1	31	194	11.73	3.53	3.56	4.34	2.24	1.56	1.21	221	551	741	
		5	31	194	18.88	5.16	5.40	4.34	2.24	1.56	1.21	221	551	741	
5		1	26	210	11.93	3.78	3.80	4.51	2.35	1.64	1.29	291	713	948	
		5	26	210	19.17	5.68	5.86	4.51	2.35	1.64	1.29	291	713	948	
20		2	1	52	120	11.50	3.00	3.15	4.00	2.01	1.38	1.03	75	196	270
			5	52	120	18.00	3.80	4.34	4.00	2.01	1.38	1.03	75	196	270
	3	1	39	166	12.07	3.44	3.53	4.17	2.13	1.47	1.12	149	380	517	
		5	39	166	18.96	4.69	5.04	4.17	2.13	1.47	1.12	149	380	517	
	4	1	31	194	12.40	3.72	3.78	4.34	2.24	1.56	1.21	221	551	741	
		5	31	194	19.48	5.31	5.57	4.34	2.24	1.56	1.21	221	551	741	
	5	1	26	210	12.61	4.02	4.05	4.51	2.35	1.64	1.29	291	713	948	
		5	26	210	19.78	5.85	6.04	4.51	2.35	1.64	1.29	291	713	948	
	40	2	1	52	120	12.75	3.19	3.44	4.00	2.01	1.38	1.03	75	196	270
			5	52	120	19.11	3.94	4.56	4.00	2.01	1.38	1.03	75	196	270
3		1	39	166	13.39	3.76	3.91	4.17	2.13	1.47	1.12	149	380	517	
		5	39	166	20.13	4.92	5.32	4.17	2.13	1.47	1.12	149	380	517	
4		1	31	194	13.75	4.11	4.21	4.34	2.24	1.56	1.21	221	551	741	
		5	31	194	20.68	5.60	5.90	4.34	2.24	1.56	1.21	221	551	741	
5		1	26	210	13.98	4.48	4.55	4.51	2.35	1.64	1.29	291	713	948	
		5	26	210	20.99	6.19	6.42	4.51	2.35	1.64	1.29	291	713	948	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF					
			B	G	MILLISECONDS/RECORD PH1 PH2 PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI			
5	2	1	45	108	10.81	3.12	3.20	4.58	2.31	1.58	1.18	66	171	236	
		5	45	108	17.29	3.95	4.44	4.58	2.31	1.58	1.18	66	171	236	
	3	1	34	148	11.33	3.48	3.51	4.77	2.43	1.68	1.28	130	332	452	
		5	34	148	18.19	4.79	5.10	4.77	2.43	1.68	1.28	130	332	452	
	4	1	27	172	11.63	3.72	3.74	4.97	2.57	1.78	1.38	193	482	648	
		5	27	172	18.68	5.38	5.61	4.97	2.57	1.78	1.38	193	482	648	
	5	1	22	190	11.89	3.99	4.00	5.19	2.71	1.90	1.50	254	620	823	
		5	22	190	19.05	5.92	6.09	5.19	2.71	1.90	1.50	254	620	823	
	10	2	1	45	108	11.11	3.17	3.27	4.58	2.31	1.58	1.18	66	171	236
			5	45	108	17.56	3.99	4.49	4.58	2.31	1.58	1.18	66	171	236
3		1	34	148	11.65	3.56	3.61	4.77	2.43	1.68	1.28	130	332	452	
		5	34	148	18.47	4.84	5.17	4.77	2.43	1.68	1.28	130	332	452	
4		1	27	172	11.97	3.82	3.85	4.97	2.57	1.78	1.38	193	482	648	
		5	27	172	18.97	5.46	5.69	4.97	2.57	1.78	1.38	193	482	648	
5		1	22	190	12.22	4.11	4.12	5.19	2.71	1.90	1.50	254	620	823	
		5	22	190	19.35	6.00	6.18	5.19	2.71	1.90	1.50	254	620	823	
20		2	1	45	108	11.72	3.27	3.41	4.58	2.31	1.58	1.18	66	171	236
			5	45	108	18.10	4.06	4.60	4.58	2.31	1.58	1.18	66	171	236
	3	1	34	148	12.29	3.72	3.80	4.77	2.43	1.68	1.28	130	332	452	
		5	34	148	19.05	4.96	5.31	4.77	2.43	1.68	1.28	130	332	452	
	4	1	27	172	12.63	4.01	4.06	4.97	2.57	1.78	1.38	193	482	648	
		5	27	172	19.56	5.60	5.86	4.97	2.57	1.78	1.38	193	482	648	
	5	1	22	190	12.90	4.34	4.37	5.19	2.71	1.90	1.50	254	620	823	
		5	22	190	19.95	6.17	6.37	5.19	2.71	1.90	1.50	254	620	823	
	40	2	1	45	108	12.95	3.46	3.70	4.58	2.31	1.58	1.18	66	171	236
			5	45	108	19.18	4.21	4.82	4.58	2.31	1.58	1.18	66	171	236
3		1	34	148	13.59	4.04	4.18	4.77	2.43	1.68	1.28	130	332	452	
		5	34	148	20.19	5.20	5.60	4.77	2.43	1.68	1.28	130	332	452	
4		1	27	172	13.95	4.40	4.49	4.97	2.57	1.78	1.38	193	482	648	
		5	27	172	20.73	5.90	6.18	4.97	2.57	1.78	1.38	193	482	648	
5		1	22	190	14.24	4.80	4.87	5.19	2.71	1.90	1.50	254	620	823	
		5	22	190	21.14	6.52	6.74	5.19	2.71	1.90	1.50	254	620	823	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD						TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	40	98	11.05	3.38	3.45	5.15	2.59	1.78	1.33	58	152	210	
		5	40	98	17.42	4.21	4.70	5.15	2.59	1.78	1.33	58	152	210	
		1	30	134	11.59	3.75	3.79	5.37	2.74	1.89	1.44	116	295	401	
	4	5	30	134	18.33	5.06	5.38	5.37	2.74	1.89	1.44	116	295	401	
		1	24	154	11.89	4.01	4.03	5.59	2.89	2.00	1.55	172	428	576	
		5	24	154	18.80	5.67	5.90	5.59	2.89	2.00	1.55	172	428	576	
	5	1	20	170	12.14	4.28	4.29	5.81	3.03	2.12	1.67	226	553	736	
		5	20	170	19.17	6.20	6.37	5.81	3.03	2.12	1.67	226	553	736	
		5	20	170	19.17	6.20	6.37	5.81	3.03	2.12	1.67	226	553	736	
	10	2	1	40	98	11.35	3.43	3.53	5.15	2.59	1.78	1.33	58	152	210
			5	40	98	17.68	4.25	4.75	5.15	2.59	1.78	1.33	58	152	210
			1	30	134	11.90	3.83	3.88	5.37	2.74	1.89	1.44	116	295	401
		3	5	30	134	18.61	5.12	5.45	5.37	2.74	1.89	1.44	116	295	401
			1	24	154	12.21	4.11	4.14	5.59	2.89	2.00	1.55	172	428	576
			5	24	154	19.09	5.75	5.98	5.59	2.89	2.00	1.55	172	428	576
4		1	20	170	12.47	4.40	4.41	5.81	3.03	2.12	1.67	226	553	736	
		5	20	170	19.46	6.29	6.47	5.81	3.03	2.12	1.67	226	553	736	
		5	20	170	19.46	6.29	6.47	5.81	3.03	2.12	1.67	226	553	736	
20		2	1	40	98	11.95	3.53	3.67	5.15	2.59	1.78	1.33	58	152	210
			5	40	98	18.22	4.32	4.86	5.15	2.59	1.78	1.33	58	152	210
			1	30	134	12.54	3.99	4.07	5.37	2.74	1.89	1.44	116	295	401
		3	5	30	134	19.17	5.24	5.59	5.37	2.74	1.89	1.44	116	295	401
			1	24	154	12.86	4.30	4.35	5.59	2.89	2.00	1.55	172	428	576
			5	24	154	19.67	5.89	6.14	5.59	2.89	2.00	1.55	172	428	576
	4	1	20	170	13.13	4.63	4.66	5.81	3.03	2.12	1.67	226	553	736	
		5	20	170	20.05	6.46	6.65	5.81	3.03	2.12	1.67	226	553	736	
		5	20	170	20.05	6.46	6.65	5.81	3.03	2.12	1.67	226	553	736	
	40	2	1	40	98	13.15	3.72	3.95	5.15	2.59	1.78	1.33	58	152	210
			5	40	98	19.28	4.47	5.08	5.15	2.59	1.78	1.33	58	152	210
			1	30	134	13.81	4.32	4.46	5.37	2.74	1.89	1.44	116	295	401
		3	5	30	134	20.30	5.48	5.87	5.37	2.74	1.89	1.44	116	295	401
			1	24	154	14.16	4.69	4.78	5.59	2.89	2.00	1.55	172	428	576
			5	24	154	20.82	6.18	6.47	5.59	2.89	2.00	1.55	172	428	576
4		1	20	170	14.45	5.09	5.15	5.81	3.03	2.12	1.67	226	553	736	
		5	20	170	21.22	6.81	7.02	5.81	3.03	2.12	1.67	226	553	736	
		5	20	170	21.22	6.81	7.02	5.81	3.03	2.12	1.67	226	553	736	

100 CHARACTER DATA RECORD 40K 1410

CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD						TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	36	88	11.29	3.64	3.71	5.73	2.88	1.97	1.47	52	137	189	
		5	36	88	17.52	4.47	4.96	5.73	2.88	1.97	1.47	52	137	189	
		1	27	120	11.83	4.03	4.06	5.97	3.05	2.10	1.60	104	265	361	
	3	5	27	120	18.44	5.34	5.65	5.97	3.05	2.10	1.60	104	265	361	
		1	22	140	12.15	4.29	4.30	6.19	3.19	2.22	1.72	155	387	520	
		5	22	140	18.95	5.95	6.17	6.19	3.19	2.22	1.72	155	387	520	
	4	1	18	154	12.43	4.59	4.59	6.46	3.37	2.35	1.85	203	498	662	
		5	18	154	19.34	6.51	6.67	6.46	3.37	2.35	1.85	203	498	662	
		5	18	154	19.34	6.51	6.67	6.46	3.37	2.35	1.85	203	498	662	
	10	2	1	36	88	11.58	3.69	3.78	5.73	2.88	1.97	1.47	52	137	189
			5	36	88	17.78	4.51	5.01	5.73	2.88	1.97	1.47	52	137	189
			1	27	120	12.14	4.11	4.16	5.97	3.05	2.10	1.60	104	265	361
		3	5	27	120	18.71	5.40	5.72	5.97	3.05	2.10	1.60	104	265	361
			1	22	140	12.47	4.39	4.41	6.19	3.19	2.22	1.72	155	387	520
			5	22	140	19.23	6.02	6.25	6.19	3.19	2.22	1.72	155	387	520
4		1	18	154	12.75	4.70	4.71	6.46	3.37	2.35	1.85	203	498	662	
		5	18	154	19.62	6.59	6.77	6.46	3.37	2.35	1.85	203	498	662	
		5	18	154	19.62	6.59	6.77	6.46	3.37	2.35	1.85	203	498	662	
20		2	1	36	88	12.17	3.79	3.93	5.73	2.88	1.97	1.47	52	137	189
			5	36	88	18.30	4.58	5.12	5.73	2.88	1.97	1.47	52	137	189
			1	27	120	12.76	4.27	4.35	5.97	3.05	2.10	1.60	104	265	361
		3	5	27	120	19.27	5.52	5.86	5.97	3.05	2.10	1.60	104	265	361
			1	22	140	13.11	4.58	4.62	6.19	3.19	2.22	1.72	155	387	520
			5	22	140	19.80	6.17	6.42	6.19	3.19	2.22	1.72	155	387	520
	4	1	18	154	13.40	4.93	4.96	6.46	3.37	2.35	1.85	203	498	662	
		5	18	154	20.20	6.77	6.95	6.46	3.37	2.35	1.85	203	498	662	
		5	18	154	20.20	6.77	6.95	6.46	3.37	2.35	1.85	203	498	662	
	40	2	1	36	88	13.35	3.98	4.21	5.73	2.88	1.97	1.47	52	137	189
			5	36	88	19.34	4.73	5.34	5.73	2.88	1.97	1.47	52	137	189
			1	27	120	14.01	4.59	4.73	5.97	3.05	2.10	1.60	104	265	361
		3	5	27	120	20.37	5.75	6.14	5.97	3.05	2.10	1.60	104	265	361
			1	22	140	14.39	4.96	5.05	6.19	3.19	2.22	1.72	155	387	520
			5	22	140	20.93	6.46	6.74	6.19	3.19	2.22	1.72	155	387	520
4		1	18	154	14.70	5.40	5.45	6.46	3.37	2.35	1.85	203	498	662	
		5	18	154	21.35	7.11	7.33	6.46	3.37	2.35	1.85	203	498	662	
		5	18	154	21.35	7.11	7.33	6.46	3.37	2.35	1.85	203	498	662	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF						
			B	G	MILLISECONDS/RECORD	MILLISECONDS/RECORD	MILLISECONDS/RECORD	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI		
					PH1	PH2	PH3									
5	2	1	30	74	11.81	4.17	4.23	6.87	3.46	2.37	1.77	44	114	157		
		5	30	74	17.83	4.99	5.47	6.87	3.46	2.37	1.77	44	114	157		
	3	1	22	104	12.43	4.59	4.62	7.19	3.67	2.54	1.94	87	220	299		
		5	22	104	18.87	5.91	6.21	7.19	3.67	2.54	1.94	87	220	299		
	4	1	18	118	12.74	4.88	4.89	7.46	3.85	2.67	2.07	129	321	432		
		5	18	118	19.33	6.54	6.76	7.46	3.85	2.67	2.07	129	321	432		
	5	1	15	130	13.03	5.19	5.19	7.75	4.05	2.83	2.23	169	415	552		
		5	15	130	19.74	7.12	7.28	7.75	4.05	2.83	2.23	169	415	552		
	10	2	1	30	74	12.09	4.21	4.30	6.87	3.46	2.37	1.77	44	114	157	
			5	30	74	18.09	5.03	5.53	6.87	3.46	2.37	1.77	44	114	157	
3		1	22	104	12.73	4.68	4.72	7.19	3.67	2.54	1.94	87	220	299		
		5	22	104	19.14	5.96	6.28	7.19	3.67	2.54	1.94	87	220	299		
4		1	18	118	13.05	4.98	5.00	7.46	3.85	2.67	2.07	129	321	432		
		5	18	118	19.61	6.61	6.84	7.46	3.85	2.67	2.07	129	321	432		
5		1	15	130	13.35	5.31	5.31	7.75	4.05	2.83	2.23	169	415	552		
		5	15	130	20.02	7.20	7.37	7.75	4.05	2.83	2.23	169	415	552		
20		2	1	30	74	12.66	4.31	4.44	6.87	3.46	2.37	1.77	44	114	157	
			5	30	74	18.59	5.10	5.64	6.87	3.46	2.37	1.77	44	114	157	
	3	1	22	104	13.34	4.84	4.91	7.19	3.67	2.54	1.94	87	220	299		
		5	22	104	19.67	6.08	6.42	7.19	3.67	2.54	1.94	87	220	299		
	4	1	18	118	13.68	5.17	5.21	7.46	3.85	2.67	2.07	129	321	432		
		5	18	118	20.16	6.76	7.00	7.46	3.85	2.67	2.07	129	321	432		
	5	1	15	130	13.98	5.54	5.56	7.75	4.05	2.83	2.23	169	415	552		
		5	15	130	20.58	7.37	7.56	7.75	4.05	2.83	2.23	169	415	552		
	40	2	1	30	74	13.80	4.50	4.73	6.87	3.46	2.37	1.77	44	114	157	
			5	30	74	19.60	5.25	5.85	6.87	3.46	2.37	1.77	44	114	157	
3		1	22	104	14.55	5.16	5.29	7.19	3.67	2.54	1.94	87	220	299		
		5	22	104	20.75	6.32	6.70	7.19	3.67	2.54	1.94	87	220	299		
4		1	18	118	14.92	5.56	5.64	7.46	3.85	2.67	2.07	129	321	432		
		5	18	118	21.26	7.05	7.33	7.46	3.85	2.67	2.07	129	321	432		
5		1	15	130	15.24	6.00	6.06	7.75	4.05	2.83	2.23	169	415	552		
		5	15	130	21.70	7.72	7.93	7.75	4.05	2.83	2.23	169	415	552		

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CW LNG	MRG ORD	NO. CF	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF						
			B	G	MILLISECONDS/RECORD	MILLISECONDS/RECORD	MILLISECONDS/RECORD	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI		
					PH1	PH2	PH3									
5	2	1	26	64	12.36	4.68	4.74	8.01	4.03	2.76	2.06	37	98	135		
		5	26	64	18.21	5.51	5.98	8.01	4.03	2.76	2.06	37	98	135		
	3	1	19	90	13.01	5.14	5.16	8.38	4.28	2.95	2.25	74	189	257		
		5	19	90	19.28	6.45	6.75	8.38	4.28	2.95	2.25	74	189	257		
	4	1	15	104	13.41	5.49	5.49	8.75	4.53	3.15	2.45	110	274	368		
		5	15	104	19.84	7.15	7.36	8.75	4.53	3.15	2.45	110	274	368		
	5	1	13	112	13.65	5.79	5.78	9.02	4.71	3.29	2.59	145	356	474		
		5	13	112	20.18	7.71	7.87	9.02	4.71	3.29	2.59	145	356	474		
	10	2	1	26	64	12.64	4.73	4.81	8.01	4.03	2.76	2.06	37	98	135	
			5	26	64	18.46	5.55	6.03	8.01	4.03	2.76	2.06	37	98	135	
3		1	19	90	13.31	5.22	5.26	8.38	4.28	2.95	2.25	74	189	257		
		5	19	90	19.54	6.51	6.82	8.38	4.28	2.95	2.25	74	189	257		
4		1	15	104	13.71	5.59	5.60	8.75	4.53	3.15	2.45	110	274	368		
		5	15	104	20.11	7.22	7.44	8.75	4.53	3.15	2.45	110	274	368		
5		1	13	112	13.96	5.91	5.90	9.02	4.71	3.29	2.59	145	356	474		
		5	13	112	20.45	7.80	7.96	9.02	4.71	3.29	2.59	145	356	474		
20		2	1	26	64	13.19	4.82	4.95	8.01	4.03	2.76	2.06	37	98	135	
			5	26	64	18.94	5.62	6.14	8.01	4.03	2.76	2.06	37	98	135	
	3	1	19	90	13.90	5.38	5.45	8.38	4.28	2.95	2.25	74	189	257		
		5	19	90	20.06	6.63	6.96	8.38	4.28	2.95	2.25	74	189	257		
	4	1	15	104	14.32	5.78	5.81	8.75	4.53	3.15	2.45	110	274	368		
		5	15	104	20.65	7.37	7.60	8.75	4.53	3.15	2.45	110	274	368		
	5	1	13	112	14.58	6.14	6.15	9.02	4.71	3.29	2.59	145	356	474		
		5	13	112	21.00	7.97	8.14	9.02	4.71	3.29	2.59	145	356	474		
	40	2	1	26	64	14.30	5.02	5.24	8.01	4.03	2.76	2.06	37	98	135	
			5	26	64	19.92	5.77	6.36	8.01	4.03	2.76	2.06	37	98	135	
3		1	19	90	15.08	5.70	5.83	8.38	4.28	2.95	2.25	74	189	257		
		5	19	90	21.11	6.86	7.24	8.38	4.28	2.95	2.25	74	189	257		
4		1	15	104	15.53	6.17	6.24	8.75	4.53	3.15	2.45	110	274	368		
		5	15	104	21.72	7.66	7.93	8.75	4.53	3.15	2.45	110	274	368		
5		1	13	112	15.81	6.60	6.65	9.02	4.71	3.29	2.59	145	356	474		
		5	13	112	22.09	8.31	8.52	9.02	4.71	3.29	2.59	145	356	474		

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CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD						TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	22	58	13.00	5.22	5.27	9.19	4.63	3.18	2.38	33	85	117	
		5	22	58	18.73	6.05	6.52	9.19	4.63	3.18	2.38	33	85	117	
	3	1	17	78	13.58	5.67	5.69	9.54	4.87	3.36	2.56	65	166	226	
		5	17	78	19.67	6.98	7.27	9.54	4.87	3.36	2.56	65	166	226	
	4	1	13	92	14.06	6.09	6.08	10.02	5.19	3.61	2.81	96	239	321	
		5	13	92	20.35	7.74	7.95	10.02	5.19	3.61	2.81	96	239	321	
	5	1	11	100	14.38	6.44	6.42	10.39	5.43	3.80	3.00	127	310	411	
		5	11	100	20.77	8.36	8.51	10.39	5.43	3.80	3.00	127	310	411	
	10	2	1	22	58	13.27	5.27	5.35	9.19	4.63	3.18	2.38	33	85	117
			5	22	58	18.97	6.09	6.57	9.19	4.63	3.18	2.38	33	85	117
3		1	17	78	13.87	5.75	5.78	9.54	4.87	3.36	2.56	65	166	226	
		5	17	78	19.93	7.04	7.35	9.54	4.87	3.36	2.56	65	166	226	
4		1	13	92	14.36	6.18	6.19	10.02	5.19	3.61	2.81	96	239	321	
		5	13	92	20.62	7.82	8.03	10.02	5.19	3.61	2.81	96	239	321	
5		1	11	100	14.68	6.56	6.55	10.39	5.43	3.80	3.00	127	310	411	
		5	11	100	21.03	8.45	8.61	10.39	5.43	3.80	3.00	127	310	411	
20		2	1	22	58	13.82	5.37	5.49	9.19	4.63	3.18	2.38	33	85	117
			5	22	58	19.45	6.16	6.68	9.19	4.63	3.18	2.38	33	85	117
	3	1	17	78	14.45	5.91	5.97	9.54	4.87	3.36	2.56	65	166	226	
		5	17	78	20.44	7.16	7.49	9.54	4.87	3.36	2.56	65	166	226	
	4	1	13	92	14.95	6.37	6.40	10.02	5.19	3.61	2.81	96	239	321	
		5	13	92	21.14	7.96	8.19	10.02	5.19	3.61	2.81	96	239	321	
	5	1	11	100	15.28	6.79	6.80	10.39	5.43	3.80	3.00	127	310	411	
		5	11	100	21.57	8.62	8.79	10.39	5.43	3.80	3.00	127	310	411	
	40	2	1	22	58	14.90	5.56	5.77	9.19	4.63	3.18	2.38	33	85	117
			5	22	58	20.41	6.31	6.90	9.19	4.63	3.18	2.38	33	85	117
3		1	17	78	15.60	6.23	6.35	9.54	4.87	3.36	2.56	65	166	226	
		5	17	78	21.45	7.40	7.77	9.54	4.87	3.36	2.56	65	166	226	
4		1	13	92	16.14	6.76	6.83	10.02	5.19	3.61	2.81	96	239	321	
		5	13	92	22.19	8.26	8.52	10.02	5.19	3.61	2.81	96	239	321	
5		1	11	100	16.49	7.25	7.29	10.39	5.43	3.80	3.00	127	310	411	
		5	11	100	22.63	8.96	9.16	10.39	5.43	3.80	3.00	127	310	411	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD						TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	20	50	13.54	5.73	5.77	10.31	5.19	3.56	2.66	29	76	105	
		5	20	50	19.09	6.56	7.02	10.31	5.19	3.56	2.66	29	76	105	
	3	1	15	70	14.22	6.23	6.24	10.75	5.49	3.79	2.89	58	147	200	
		5	15	70	20.18	7.54	7.83	10.75	5.49	3.79	2.89	58	147	200	
	4	1	12	80	14.64	6.62	6.61	11.19	5.78	4.01	3.11	86	214	288	
		5	12	80	20.76	8.28	8.47	11.19	5.78	4.01	3.11	86	214	288	
	5	1	10	88	15.01	7.02	6.99	11.63	6.07	4.24	3.34	113	276	368	
		5	10	88	21.24	8.94	9.08	11.63	6.07	4.24	3.34	113	276	368	
	10	2	1	20	50	13.81	5.78	5.85	10.31	5.19	3.56	2.66	29	76	105
			5	20	50	19.33	6.60	7.07	10.31	5.19	3.56	2.66	29	76	105
3		1	15	70	14.51	6.31	6.33	10.75	5.49	3.79	2.89	58	147	200	
		5	15	70	20.43	7.60	7.90	10.75	5.49	3.79	2.89	58	147	200	
4		1	12	80	14.93	6.72	6.72	11.19	5.78	4.01	3.11	86	214	288	
		5	12	80	21.02	8.35	8.56	11.19	5.78	4.01	3.11	86	214	288	
5		1	10	88	15.30	7.13	7.12	11.63	6.07	4.24	3.34	113	276	368	
		5	10	88	21.51	9.03	9.18	11.63	6.07	4.24	3.34	113	276	368	
20		2	1	20	50	14.33	5.88	5.99	10.31	5.19	3.56	2.66	29	76	105
			5	20	50	19.79	6.67	7.18	10.31	5.19	3.56	2.66	29	76	105
	3	1	15	70	15.07	6.47	6.52	10.75	5.49	3.79	2.89	58	147	200	
		5	15	70	20.93	7.72	8.04	10.75	5.49	3.79	2.89	58	147	200	
	4	1	12	80	15.51	6.91	6.93	11.19	5.78	4.01	3.11	86	214	288	
		5	12	80	21.53	8.50	8.72	11.19	5.78	4.01	3.11	86	214	288	
	5	1	10	88	15.89	7.37	7.37	11.63	6.07	4.24	3.34	113	276	368	
		5	10	88	22.03	9.20	9.36	11.63	6.07	4.24	3.34	113	276	368	
	40	2	1	20	50	15.38	6.07	6.27	10.31	5.19	3.56	2.66	29	76	105
			5	20	50	20.72	6.82	7.40	10.31	5.19	3.56	2.66	29	76	105
3		1	15	70	16.20	6.79	6.91	10.75	5.49	3.79	2.89	58	147	200	
		5	15	70	21.93	7.95	8.32	10.75	5.49	3.79	2.89	58	147	200	
4		1	12	80	16.66	7.29	7.36	11.19	5.78	4.01	3.11	86	214	288	
		5	12	80	22.55	8.79	9.05	11.19	5.78	4.01	3.11	86	214	288	
5		1	10	88	17.07	7.83	7.86	11.63	6.07	4.24	3.34	113	276	368	
		5	10	88	23.07	9.54	9.73	11.63	6.07	4.24	3.34	113	276	368	



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CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD						TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	18	46	14.18	6.25	6.29	11.46	5.77	3.95	2.95	26	68	94	
		5	18	46	19.63	7.08	7.53	11.46	5.77	3.95	2.95	26	68	94	
	3	1	13	64	14.92	6.82	6.83	12.02	6.15	4.25	3.25	52	132	179	
		5	13	64	20.78	8.14	8.41	12.02	6.15	4.25	3.25	52	132	179	
		5	11	72	15.28	7.17	7.16	12.39	6.39	4.44	3.44	77	193	260	
	4	1	11	72	21.28	8.83	9.02	12.39	6.39	4.44	3.44	77	193	260	
		5	11	72	21.28	8.83	9.02	12.39	6.39	4.44	3.44	77	193	260	
	5	1	9	80	15.71	7.63	7.60	12.92	6.75	4.71	3.71	101	249	331	
		5	9	80	21.83	9.55	9.68	12.92	6.75	4.71	3.71	101	249	331	
	10	2	1	18	46	14.44	6.30	6.36	11.46	5.77	3.95	2.95	26	68	94
5			18	46	19.86	7.12	7.59	11.46	5.77	3.95	2.95	26	68	94	
3		1	13	64	15.20	6.91	6.92	12.02	6.15	4.25	3.25	52	132	179	
		5	13	64	21.02	8.19	8.49	12.02	6.15	4.25	3.25	52	132	179	
		5	11	72	15.57	7.27	7.26	12.39	6.39	4.44	3.44	77	193	260	
4		1	11	72	21.53	8.90	9.10	12.39	6.39	4.44	3.44	77	193	260	
		5	11	72	21.53	8.90	9.10	12.39	6.39	4.44	3.44	77	193	260	
5		1	9	80	16.00	7.74	7.72	12.92	6.75	4.71	3.71	101	249	331	
		5	9	80	22.09	9.63	9.78	12.92	6.75	4.71	3.71	101	249	331	
20		2	1	18	46	14.96	6.40	6.50	11.46	5.77	3.95	2.95	26	68	94
	5		18	46	20.32	7.19	7.70	11.46	5.77	3.95	2.95	26	68	94	
	3	1	13	64	15.75	7.07	7.11	12.02	6.15	4.25	3.25	52	132	179	
		5	13	64	21.51	8.31	8.63	12.02	6.15	4.25	3.25	52	132	179	
		5	11	72	16.13	7.46	7.48	12.39	6.39	4.44	3.44	77	193	260	
	4	1	11	72	22.03	9.05	9.27	12.39	6.39	4.44	3.44	77	193	260	
		5	11	72	22.03	9.05	9.27	12.39	6.39	4.44	3.44	77	193	260	
	5	1	9	80	16.58	7.97	7.97	12.92	6.75	4.71	3.71	101	249	331	
		5	9	80	22.60	9.81	9.96	12.92	6.75	4.71	3.71	101	249	331	
	40	2	1	18	46	15.99	6.59	6.79	11.46	5.77	3.95	2.95	26	68	94
5			18	46	21.23	7.34	7.92	11.46	5.77	3.95	2.95	26	68	94	
3		1	13	64	16.86	7.39	7.49	12.02	6.15	4.25	3.25	52	132	179	
		5	13	64	22.49	8.55	8.91	12.02	6.15	4.25	3.25	52	132	179	
		5	11	72	17.26	7.85	7.91	12.39	6.39	4.44	3.44	77	193	260	
4		1	11	72	23.03	9.34	9.60	12.39	6.39	4.44	3.44	77	193	260	
		5	11	72	23.03	9.34	9.60	12.39	6.39	4.44	3.44	77	193	260	
5		1	9	80	17.74	8.44	8.46	12.92	6.75	4.71	3.71	101	249	331	
		5	9	80	23.62	10.15	10.34	12.92	6.75	4.71	3.71	101	249	331	

220 CHARACTER DATA RECORD 40K 1410

CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD						TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	16	44	14.89	6.80	6.83	12.64	6.37	4.37	3.27	24	62	85	
		5	16	44	20.29	7.62	8.07	12.64	6.37	4.37	3.27	24	62	85	
	3	1	12	58	15.56	7.36	7.36	13.19	6.74	4.65	3.55	47	120	163	
		5	12	58	21.29	8.67	8.94	13.19	6.74	4.65	3.55	47	120	163	
		5	10	66	15.97	7.75	7.73	13.63	7.03	4.88	3.78	70	175	236	
	4	1	10	66	21.86	9.41	9.59	13.63	7.03	4.88	3.78	70	175	236	
		5	10	66	21.86	9.41	9.59	13.63	7.03	4.88	3.78	70	175	236	
	5	1	8	74	16.48	8.28	8.24	14.28	7.47	5.22	4.12	92	225	299	
		5	8	74	22.51	10.20	10.33	14.28	7.47	5.22	4.12	92	225	299	
	10	2	1	16	44	15.15	6.84	6.90	12.64	6.37	4.37	3.27	24	62	85
5			16	44	20.52	7.66	8.13	12.64	6.37	4.37	3.27	24	62	85	
3		1	12	58	15.83	7.44	7.45	13.19	6.74	4.65	3.55	47	120	163	
		5	12	58	21.53	8.73	9.01	13.19	6.74	4.65	3.55	47	120	163	
		5	10	66	16.25	7.85	7.83	13.63	7.03	4.88	3.78	70	175	236	
4		1	10	66	22.10	9.48	9.67	13.63	7.03	4.88	3.78	70	175	236	
		5	10	66	22.10	9.48	9.67	13.63	7.03	4.88	3.78	70	175	236	
5		1	8	74	16.77	8.39	8.37	14.28	7.47	5.22	4.12	92	225	299	
		5	8	74	22.76	10.29	10.42	14.28	7.47	5.22	4.12	92	225	299	
20		2	1	16	44	15.66	6.94	7.04	12.64	6.37	4.37	3.27	24	62	85
	5		16	44	20.97	7.73	8.24	12.64	6.37	4.37	3.27	24	62	85	
	3	1	12	58	16.37	7.60	7.64	13.19	6.74	4.65	3.55	47	120	163	
		5	12	58	22.01	8.85	9.16	13.19	6.74	4.65	3.55	47	120	163	
		5	10	66	16.80	8.04	8.05	13.63	7.03	4.88	3.78	70	175	236	
	4	1	10	66	22.59	9.63	9.84	13.63	7.03	4.88	3.78	70	175	236	
		5	10	66	22.59	9.63	9.84	13.63	7.03	4.88	3.78	70	175	236	
	5	1	8	74	17.34	8.62	8.61	14.28	7.47	5.22	4.12	92	225	299	
		5	8	74	23.26	10.46	10.61	14.28	7.47	5.22	4.12	92	225	299	
	40	2	1	16	44	16.69	7.13	7.33	12.64	6.37	4.37	3.27	24	62	85
5			16	44	21.87	7.88	8.45	12.64	6.37	4.37	3.27	24	62	85	
3		1	12	58	17.46	7.92	8.02	13.19	6.74	4.65	3.55	47	120	163	
		5	12	58	22.96	9.08	9.44	13.19	6.74	4.65	3.55	47	120	163	
		5	10	66	17.92	8.42	8.48	13.63	7.03	4.88	3.78	70	175	236	
4		1	10	66	23.58	9.92	10.17	13.63	7.03	4.88	3.78	70	175	236	
		5	10	66	23.58	9.92	10.17	13.63	7.03	4.88	3.78	70	175	236	
5		1	8	74	18.48	9.09	9.11	14.28	7.47	5.22	4.12	92	225	299	
		5	8	74	24.27	10.80	10.98	14.28	7.47	5.22	4.12	92	225	299	

240 CHARACTER DATA RECORD 40K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	15	38	15.43	7.30	7.32	13.75	6.93	4.75	3.55	22	57	78	
		5	15	38	20.65	8.13	8.56	13.75	6.93	4.75	3.55	22	57	78	
	3	1	11	54	16.24	7.91	7.90	14.39	7.35	5.08	3.88	43	110	149	
		5	11	54	21.89	9.22	9.49	14.39	7.35	5.08	3.88	43	110	149	
	4	1	9	62	16.72	8.36	8.33	14.92	7.71	5.35	4.15	64	160	216	
		5	9	62	22.53	10.02	10.19	14.92	7.71	5.35	4.15	64	160	216	
	5	1	7	68	17.30	8.99	8.95	15.75	8.26	5.79	4.59	84	204	271	
		5	7	68	23.22	10.91	11.04	15.75	8.26	5.79	4.59	84	204	271	
	10	2	1	15	38	15.68	7.35	7.39	13.75	6.93	4.75	3.55	22	57	78
			5	15	38	20.87	8.16	8.62	13.75	6.93	4.75	3.55	22	57	78
3		1	11	54	16.51	7.99	8.00	14.39	7.35	5.08	3.88	43	110	149	
		5	11	54	22.12	9.28	9.56	14.39	7.35	5.08	3.88	43	110	149	
4		1	9	62	16.99	8.45	8.44	14.92	7.71	5.35	4.15	64	160	216	
		5	9	62	22.77	10.09	10.28	14.92	7.71	5.35	4.15	64	160	216	
5		1	7	68	17.58	9.11	9.07	15.75	8.26	5.79	4.59	84	204	271	
		5	7	68	23.47	11.00	11.13	15.75	8.26	5.79	4.59	84	204	271	
20		2	1	15	38	16.17	7.44	7.54	13.75	6.93	4.75	3.55	22	57	78
			5	15	38	21.31	8.24	8.73	13.75	6.93	4.75	3.55	22	57	78
	3	1	11	54	17.04	8.15	8.19	14.39	7.35	5.08	3.88	43	110	149	
		5	11	54	22.59	9.40	9.70	14.39	7.35	5.08	3.88	43	110	149	
	4	1	9	62	17.54	8.65	8.65	14.92	7.71	5.35	4.15	64	160	216	
		5	9	62	23.26	10.23	10.44	14.92	7.71	5.35	4.15	64	160	216	
	5	1	7	68	18.14	9.34	9.32	15.75	8.26	5.79	4.59	84	204	271	
		5	7	68	23.97	11.17	11.32	15.75	8.26	5.79	4.59	84	204	271	
	40	2	1	15	38	17.17	7.63	7.82	13.75	6.93	4.75	3.55	22	57	78
			5	15	38	22.18	8.38	8.95	13.75	6.93	4.75	3.55	22	57	78
3		1	11	54	18.11	8.47	8.57	14.39	7.35	5.08	3.88	43	110	149	
		5	11	54	23.54	9.64	9.99	14.39	7.35	5.08	3.88	43	110	149	
4		1	9	62	18.64	9.03	9.08	14.92	7.71	5.35	4.15	64	160	216	
		5	9	62	24.23	10.53	10.77	14.92	7.71	5.35	4.15	64	160	216	
5		1	7	68	19.26	9.80	9.82	15.75	8.26	5.79	4.59	84	204	271	
		5	7	68	24.95	11.51	11.69	15.75	8.26	5.79	4.59	84	204	271	

260 CHARACTER DATA RECORD 40K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	14	34	16.02	7.81	7.82	14.87	7.49	5.13	3.83	20	52	72	
		5	14	34	21.11	8.64	9.07	14.87	7.49	5.13	3.83	20	52	72	
	3	1	10	50	16.94	8.49	8.47	15.63	7.99	5.52	4.22	40	101	138	
		5	10	50	22.49	9.80	10.06	15.63	7.99	5.52	4.22	40	101	138	
	4	1	8	58	17.50	9.01	8.97	16.28	8.43	5.86	4.56	59	147	197	
		5	8	58	23.23	10.67	10.84	16.28	8.43	5.86	4.56	59	147	197	
	5	1	7	62	17.85	9.43	9.38	16.75	8.74	6.11	4.81	78	192	255	
		5	7	62	23.66	11.35	11.47	16.75	8.74	6.11	4.81	78	192	255	
	10	2	1	14	34	16.27	7.86	7.90	14.87	7.49	5.13	3.83	20	52	72
			5	14	34	21.32	8.67	9.12	14.87	7.49	5.13	3.83	20	52	72
3		1	10	50	17.20	8.57	8.57	15.63	7.99	5.52	4.22	40	101	138	
		5	10	50	22.73	9.86	10.13	15.63	7.99	5.52	4.22	40	101	138	
4		1	8	58	17.77	9.10	9.08	16.28	8.43	5.86	4.56	59	147	197	
		5	8	58	23.47	10.74	10.92	16.28	8.43	5.86	4.56	59	147	197	
5		1	7	62	18.12	9.54	9.50	16.75	8.74	6.11	4.81	78	192	255	
		5	7	62	23.90	11.43	11.56	16.75	8.74	6.11	4.81	78	192	255	
20		2	1	14	34	16.75	7.95	8.04	14.87	7.49	5.13	3.83	20	52	72
			5	14	34	21.75	8.75	9.23	14.87	7.49	5.13	3.83	20	52	72
	3	1	10	50	17.73	8.73	8.76	15.63	7.99	5.52	4.22	40	101	138	
		5	10	50	23.19	9.98	10.27	15.63	7.99	5.52	4.22	40	101	138	
	4	1	8	58	18.31	9.30	9.30	16.28	8.43	5.86	4.56	59	147	197	
		5	8	58	23.95	10.89	11.09	16.28	8.43	5.86	4.56	59	147	197	
	5	1	7	62	18.67	9.77	9.75	16.75	8.74	6.11	4.81	78	192	255	
		5	7	62	24.39	11.60	11.74	16.75	8.74	6.11	4.81	78	192	255	
	40	2	1	14	34	17.72	8.14	8.33	14.87	7.49	5.13	3.83	20	52	72
			5	14	34	22.60	8.89	9.45	14.87	7.49	5.13	3.83	20	52	72
3		1	10	50	18.78	9.05	9.14	15.63	7.99	5.52	4.22	40	101	138	
		5	10	50	24.12	10.21	10.56	15.63	7.99	5.52	4.22	40	101	138	
4		1	8	58	19.40	9.68	9.72	16.28	8.43	5.86	4.56	59	147	197	
		5	8	58	24.91	11.18	11.41	16.28	8.43	5.86	4.56	59	147	197	
5		1	7	62	19.77	10.23	10.25	16.75	8.74	6.11	4.81	78	192	255	
		5	7	62	25.36	11.95	12.12	16.75	8.74	6.11	4.81	78	192	255	

280 CHARACTER DATA RECORD 40K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	13	32	16.69	8.33	8.34	16.02	8.07	5.53	4.13	18	49	67
		5	13	32	21.71	9.16	9.58	16.02	8.07	5.53	4.13	18	49	67
	3	1	9	48	17.72	9.10	9.08	16.92	8.67	5.99	4.59	37	94	127
		5	9	48	23.22	10.41	10.66	16.92	8.67	5.99	4.59	37	94	127
	4	1	7	56	18.38	9.72	9.68	17.75	9.22	6.43	5.03	54	135	181
5		7	56	24.07	11.38	11.55	17.75	9.22	6.43	5.03	54	135	181	
5	1	6	60	18.82	10.23	10.18	18.38	9.64	6.75	5.35	72	175	232	
	5	6	60	24.59	12.15	12.27	18.38	9.64	6.75	5.35	72	175	232	
10	2	1	13	32	16.93	8.38	8.41	16.02	8.07	5.53	4.13	18	49	67
		5	13	32	21.92	9.19	9.64	16.02	8.07	5.53	4.13	18	49	67
	3	1	9	48	17.98	9.18	9.17	16.92	8.67	5.99	4.59	37	94	127
		5	9	48	23.45	10.47	10.73	16.92	8.67	5.99	4.59	37	94	127
	4	1	7	56	18.65	9.82	9.79	17.75	9.22	6.43	5.03	54	135	181
5		7	56	24.31	11.45	11.63	17.75	9.22	6.43	5.03	54	135	181	
5	1	6	60	19.09	10.35	10.30	18.38	9.64	6.75	5.35	72	175	232	
	5	6	60	24.83	12.24	12.36	18.38	9.64	6.75	5.35	72	175	232	
20	2	1	13	32	17.41	8.47	8.55	16.02	8.07	5.53	4.13	18	49	67
		5	13	32	22.34	9.27	9.75	16.02	8.07	5.53	4.13	18	49	67
	3	1	9	48	18.50	9.34	9.36	16.92	8.67	5.99	4.59	37	94	127
		5	9	48	23.91	10.58	10.88	16.92	8.67	5.99	4.59	37	94	127
	4	1	7	56	19.19	10.01	10.00	17.75	9.22	6.43	5.03	54	135	181
5		7	56	24.78	11.60	11.79	17.75	9.22	6.43	5.03	54	135	181	
5	1	6	60	19.64	10.58	10.55	18.38	9.64	6.75	5.35	72	175	232	
	5	6	60	25.31	12.41	12.54	18.38	9.64	6.75	5.35	72	175	232	
40	2	1	13	32	18.36	8.67	8.84	16.02	8.07	5.53	4.13	18	49	67
		5	13	32	23.17	9.41	9.97	16.02	8.07	5.53	4.13	18	49	67
	3	1	9	48	19.54	9.66	9.74	16.92	8.67	5.99	4.59	37	94	127
		5	9	48	24.83	10.82	11.16	16.92	8.67	5.99	4.59	37	94	127
	4	1	7	56	20.27	10.40	10.43	17.75	9.22	6.43	5.03	54	135	181
5		7	56	25.73	11.89	12.12	17.75	9.22	6.43	5.03	54	135	181	
5	1	6	60	20.73	11.04	11.05	18.38	9.64	6.75	5.35	72	175	232	
	5	6	60	26.28	12.75	12.92	18.38	9.64	6.75	5.35	72	175	232	

300 CHARACTER DATA RECORD 40K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	12	30	17.37	8.86	8.87	17.19	8.66	5.93	4.43	17	45	63
		5	12	30	22.31	9.69	10.11	17.19	8.66	5.93	4.43	17	45	63
	3	1	9	42	18.21	9.53	9.50	17.92	9.15	6.31	4.81	34	88	120
		5	9	42	23.55	10.84	11.09	17.92	9.15	6.31	4.81	34	88	120
	4	1	7	50	18.90	10.16	10.11	18.75	9.70	6.75	5.25	51	128	171
5		7	50	24.45	11.81	11.98	18.75	9.70	6.75	5.25	51	128	171	
5	1	6	54	19.35	10.67	10.61	19.38	10.12	7.07	5.57	67	166	220	
	5	6	54	24.99	12.59	12.69	19.38	10.12	7.07	5.57	67	166	220	
10	2	1	12	30	17.61	8.91	8.94	17.19	8.66	5.93	4.43	17	45	63
		5	12	30	22.51	9.73	10.17	17.19	8.66	5.93	4.43	17	45	63
	3	1	9	42	18.47	9.61	9.60	17.92	9.15	6.31	4.81	34	88	120
		5	9	42	23.78	10.90	11.16	17.92	9.15	6.31	4.81	34	88	120
	4	1	7	50	19.16	10.25	10.22	18.75	9.70	6.75	5.25	51	128	171
5		7	50	24.69	11.89	12.06	18.75	9.70	6.75	5.25	51	128	171	
5	1	6	54	19.62	10.78	10.73	19.38	10.12	7.07	5.57	67	166	220	
	5	6	54	25.23	12.67	12.79	19.38	10.12	7.07	5.57	67	166	220	
20	2	1	12	30	18.08	9.01	9.08	17.19	8.66	5.93	4.43	17	45	63
		5	12	30	22.93	9.80	10.28	17.19	8.66	5.93	4.43	17	45	63
	3	1	9	42	18.97	9.77	9.79	17.92	9.15	6.31	4.81	34	88	120
		5	9	42	24.22	11.02	11.30	17.92	9.15	6.31	4.81	34	88	120
	4	1	7	50	19.69	10.45	10.43	18.75	9.70	6.75	5.25	51	128	171
5		7	50	25.15	12.03	12.22	18.75	9.70	6.75	5.25	51	128	171	
5	1	6	54	20.15	11.01	10.98	19.38	10.12	7.07	5.57	67	166	220	
	5	6	54	25.70	12.85	12.97	19.38	10.12	7.07	5.57	67	166	220	
40	2	1	12	30	19.02	9.20	9.37	17.19	8.66	5.93	4.43	17	45	63
		5	12	30	23.75	9.95	10.50	17.19	8.66	5.93	4.43	17	45	63
	3	1	9	42	19.99	10.09	10.17	17.92	9.15	6.31	4.81	34	88	120
		5	9	42	25.12	11.26	11.59	17.92	9.15	6.31	4.81	34	88	120
	4	1	7	50	20.74	10.83	10.86	18.75	9.70	6.75	5.25	51	128	171
5		7	50	26.08	12.33	12.55	18.75	9.70	6.75	5.25	51	128	171	
5	1	6	54	21.22	11.47	11.47	19.38	10.12	7.07	5.57	67	166	220	
	5	6	54	26.64	13.19	13.35	19.38	10.12	7.07	5.57	67	166	220	

400 CHARACTER DATA RECORD 40K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF		
					MILLISECONDS/RECORD			MILLISECCNDS/RECORD				RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	9	22	20.71	11.48	11.45	22.92	11.55	7.91	5.91	13	34	47
		5	9	22	25.27	12.30	12.69	22.92	11.55	7.91	5.91	13	34	47
	3	1	6	34	22.09	12.57	12.51	24.38	12.52	8.67	6.67	25	65	88
		5	6	34	27.17	13.88	14.10	24.38	12.52	8.67	6.67	25	65	88
	4	1	5	38	22.72	13.22	13.14	25.26	13.11	9.13	7.13	38	95	127
		5	5	38	27.94	14.88	15.01	25.26	13.11	9.13	7.13	38	95	127
	5	1	4	42	23.57	14.14	14.05	26.57	13.98	9.81	7.81	50	121	160
		5	4	42	28.92	16.06	16.14	26.57	13.98	9.81	7.81	50	121	160
10	2	1	9	22	20.93	11.52	11.52	22.92	11.55	7.91	5.91	13	34	47
		5	9	22	25.47	12.34	12.74	22.92	11.55	7.91	5.91	13	34	47
	3	1	6	34	22.33	12.65	12.61	24.38	12.52	8.67	6.67	25	65	88
		5	6	34	27.38	13.94	14.17	24.38	12.52	8.67	6.67	25	65	88
	4	1	5	38	22.96	13.32	13.25	25.26	13.11	9.13	7.13	38	95	127
		5	5	38	28.15	14.95	15.09	25.26	13.11	9.13	7.13	38	95	127
	5	1	4	42	23.83	14.25	14.17	26.57	13.98	9.81	7.81	50	121	160
		5	4	42	29.14	16.15	16.23	26.57	13.98	9.81	7.81	50	121	160
20	2	1	9	22	21.37	11.62	11.66	22.92	11.55	7.91	5.91	13	34	47
		5	9	22	25.85	12.41	12.85	22.92	11.55	7.91	5.91	13	34	47
	3	1	6	34	22.81	12.81	12.80	24.38	12.52	8.67	6.67	25	65	88
		5	6	34	27.81	14.06	14.31	24.38	12.52	8.67	6.67	25	65	88
	4	1	5	38	23.46	13.51	13.47	25.26	13.11	9.13	7.13	38	95	127
		5	5	38	28.59	15.10	15.26	25.26	13.11	9.13	7.13	38	95	127
	5	1	4	42	24.33	14.49	14.42	26.57	13.98	9.81	7.81	50	121	160
		5	4	42	29.59	16.32	16.42	26.57	13.98	9.81	7.81	50	121	160
40	2	1	9	22	22.24	11.81	11.95	22.92	11.55	7.91	5.91	13	34	47
		5	9	22	26.61	12.56	13.07	22.92	11.55	7.91	5.91	13	34	47
	3	1	6	34	23.78	13.13	13.18	24.38	12.52	8.67	6.67	25	65	88
		5	6	34	28.66	14.29	14.60	24.38	12.52	8.67	6.67	25	65	88
	4	1	5	38	24.45	13.90	13.90	25.26	13.11	9.13	7.13	38	95	127
		5	5	38	29.46	15.39	15.59	25.26	13.11	9.13	7.13	38	95	127
	5	1	4	42	25.35	14.95	14.92	26.57	13.98	9.81	7.81	50	121	160
		5	4	42	30.48	16.66	16.79	26.57	13.98	9.81	7.81	50	121	160

500 CHARACTER DATA RECORD 40K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF		
					MILLISECONDS/RECORD			MILLISECCNDS/RECORD				RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	7	20	24.39	14.14	14.09	28.75	14.50	9.95	7.45	10	27	37
		5	7	20	28.84	14.97	15.33	28.75	14.50	9.95	7.45	10	27	37
	3	1	5	26	25.56	15.27	15.18	30.26	15.51	10.73	8.23	20	52	71
		5	5	26	30.33	16.58	16.77	30.26	15.51	10.73	8.23	20	52	71
	4	1	4	30	26.48	16.17	16.07	31.57	16.38	11.41	8.91	30	76	101
		5	4	30	31.41	17.83	17.93	31.57	16.38	11.41	8.91	30	76	101
	5	1	3	34	27.85	17.61	17.49	33.76	17.85	12.55	10.05	40	96	126
		5	3	34	32.94	19.53	19.58	33.76	17.85	12.55	10.05	40	96	126
10	2	1	7	20	24.61	14.19	14.16	28.75	14.50	9.95	7.45	10	27	37
		5	7	20	29.02	15.01	15.38	28.75	14.50	9.95	7.45	10	27	37
	3	1	5	26	25.79	15.35	15.27	30.26	15.51	10.73	8.23	20	52	71
		5	5	26	30.52	16.64	16.84	30.26	15.51	10.73	8.23	20	52	71
	4	1	4	30	26.71	16.27	16.18	31.57	16.38	11.41	8.91	30	76	101
		5	4	30	31.62	17.91	18.02	31.57	16.38	11.41	8.91	30	76	101
	5	1	3	34	28.09	17.73	17.61	33.76	17.85	12.55	10.05	40	96	126
		5	3	34	33.15	19.62	19.67	33.76	17.85	12.55	10.05	40	96	126
20	2	1	7	20	25.03	14.29	14.30	28.75	14.50	9.95	7.45	10	27	37
		5	7	20	29.40	15.08	15.49	28.75	14.50	9.95	7.45	10	27	37
	3	1	5	26	26.24	15.51	15.47	30.26	15.51	10.73	8.23	20	52	71
		5	5	26	30.92	16.75	16.98	30.26	15.51	10.73	8.23	20	52	71
	4	1	4	30	27.18	16.46	16.39	31.57	16.38	11.41	8.91	30	76	101
		5	4	30	32.03	18.05	18.18	31.57	16.38	11.41	8.91	30	76	101
	5	1	3	34	28.58	17.96	17.86	33.76	17.85	12.55	10.05	40	96	126
		5	3	34	33.58	19.79	19.86	33.76	17.85	12.55	10.05	40	96	126
40	2	1	7	20	25.88	14.48	14.59	28.75	14.50	9.95	7.45	10	27	37
		5	7	20	30.14	15.23	15.71	28.75	14.50	9.95	7.45	10	27	37
	3	1	5	26	27.15	15.83	15.85	30.26	15.51	10.73	8.23	20	52	71
		5	5	26	31.72	16.99	17.26	30.26	15.51	10.73	8.23	20	52	71
	4	1	4	30	28.12	16.85	16.82	31.57	16.38	11.41	8.91	30	76	101
		5	4	30	32.86	18.35	18.51	31.57	16.38	11.41	8.91	30	76	101
	5	1	3	34	29.54	18.42	18.36	33.76	17.85	12.55	10.05	40	96	126
		5	3	34	34.43	20.13	20.23	33.76	17.85	12.55	10.05	40	96	126

750 CHARACTER DATA RECORD 40K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
					5	2	1	4	16	34.02	21.24	21.12	44.07	22.38
		5	4	16	38.19	22.07	22.36	44.07	22.38	15.41	11.66	7	17	24
	3	1	3	20	35.51	22.78	22.62	46.26	23.85	16.55	12.80	13	34	46
		5	3	20	39.96	24.09	24.20	46.26	23.85	16.55	12.80	13	34	46
	4	1	2	22	38.06	25.51	25.32	50.65	26.77	18.82	15.07	20	48	63
		5	2	22	42.62	27.16	27.19	50.65	26.77	18.82	15.07	20	48	63
	5	1	2	22	38.06	25.64	25.45	50.65	26.77	18.82	15.07	26	64	84
		5	2	22	42.62	27.57	27.53	50.65	26.77	18.82	15.07	26	64	84
10	2	1	4	16	34.22	21.29	21.19	44.07	22.38	15.41	11.66	7	17	24
		5	4	16	38.37	22.11	22.42	44.07	22.38	15.41	11.66	7	17	24
	3	1	3	20	35.73	22.86	22.71	46.26	23.85	16.55	12.80	13	34	46
		5	3	20	40.15	24.15	24.28	46.26	23.85	16.55	12.80	13	34	46
	4	1	2	22	38.28	25.60	25.43	50.65	26.77	18.82	15.07	20	48	63
		5	2	22	42.82	27.24	27.27	50.65	26.77	18.82	15.07	20	48	63
	5	1	2	22	38.28	25.76	25.57	50.65	26.77	18.82	15.07	26	64	84
		5	2	22	42.82	27.65	27.63	50.65	26.77	18.82	15.07	26	64	84
20	2	1	4	16	34.62	21.39	21.33	44.07	22.38	15.41	11.66	7	17	24
		5	4	16	38.72	22.18	22.53	44.07	22.38	15.41	11.66	7	17	24
	3	1	3	20	36.15	23.02	22.90	46.26	23.85	16.55	12.80	13	34	46
		5	3	20	40.52	24.26	24.42	46.26	23.85	16.55	12.80	13	34	46
	4	1	2	22	38.72	25.79	25.64	50.65	26.77	18.82	15.07	20	48	63
		5	2	22	43.20	27.38	27.43	50.65	26.77	18.82	15.07	20	48	63
	5	1	2	22	38.72	25.99	25.82	50.65	26.77	18.82	15.07	26	64	84
		5	2	22	43.20	27.82	27.81	50.65	26.77	18.82	15.07	26	64	84
40	2	1	4	16	35.42	21.58	21.62	44.07	22.38	15.41	11.66	7	17	24
		5	4	16	39.42	22.33	22.74	44.07	22.38	15.41	11.66	7	17	24
	3	1	3	20	37.00	23.34	23.29	46.26	23.85	16.55	12.80	13	34	46
		5	3	20	41.24	24.50	24.70	46.26	23.85	16.55	12.80	13	34	46
	4	1	2	22	39.59	26.18	26.07	50.65	26.77	18.82	15.07	20	48	63
		5	2	22	43.96	27.68	27.76	50.65	26.77	18.82	15.07	20	48	63
	5	1	2	22	39.59	26.45	26.31	50.65	26.77	18.82	15.07	26	64	84
		5	2	22	43.96	28.17	28.18	50.65	26.77	18.82	15.07	26	64	84

1000 CHARACTER DATA RECORD 40K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
					5	2	1	3	12	43.21	27.98	27.78	58.76	29.85
		5	3	12	47.04	28.81	29.02	58.76	29.85	20.55	15.55	5	13	18
	3	1	2	16	46.00	30.81	30.57	63.15	32.77	22.82	17.82	10	25	33
		5	2	16	50.18	32.12	32.16	63.15	32.77	22.82	17.82	10	25	33
	4	1	2	16	46.00	30.94	30.69	63.15	32.77	22.82	17.82	15	38	50
		5	2	16	50.18	32.60	32.55	63.15	32.77	22.82	17.82	15	38	50
	5	1	1	20	53.57	38.87	38.58	76.30	41.55	29.65	24.65	19	43	55
		5	1	20	58.02	40.79	40.67	76.30	41.55	29.65	24.65	19	43	55
10	2	1	3	12	43.40	28.03	27.85	58.76	29.85	20.55	15.55	5	13	18
		5	3	12	47.20	28.85	29.08	58.76	29.85	20.55	15.55	5	13	18
	3	1	2	16	46.20	30.89	30.67	63.15	32.77	22.82	17.82	10	25	33
		5	2	16	50.35	32.18	32.23	63.15	32.77	22.82	17.82	10	25	33
	4	1	2	16	46.20	31.03	30.79	63.15	32.77	22.82	17.82	15	38	50
		5	2	16	50.35	32.67	32.63	63.15	32.77	22.82	17.82	15	38	50
	5	1	1	20	53.78	38.99	38.71	76.30	41.55	29.65	24.65	19	43	55
		5	1	20	58.20	40.88	40.76	76.30	41.55	29.65	24.65	19	43	55
20	2	1	3	12	43.77	28.12	27.99	58.76	29.85	20.55	15.55	5	13	18
		5	3	12	47.52	28.92	29.19	58.76	29.85	20.55	15.55	5	13	18
	3	1	2	16	46.60	31.05	30.86	63.15	32.77	22.82	17.82	10	25	33
		5	2	16	50.71	32.29	32.37	63.15	32.77	22.82	17.82	10	25	33
	4	1	2	16	46.60	31.23	31.01	63.15	32.77	22.82	17.82	15	38	50
		5	2	16	50.71	32.82	32.80	63.15	32.77	22.82	17.82	15	38	50
	5	1	1	20	54.21	39.22	38.96	76.30	41.55	29.65	24.65	19	43	55
		5	1	20	58.57	41.05	40.95	76.30	41.55	29.65	24.65	19	43	55
40	2	1	3	12	44.50	28.32	28.28	58.76	29.85	20.55	15.55	5	13	18
		5	3	12	48.17	29.06	29.41	58.76	29.85	20.55	15.55	5	13	18
	3	1	2	16	47.41	31.37	31.24	63.15	32.77	22.82	17.82	10	25	33
		5	2	16	51.41	32.53	32.66	63.15	32.77	22.82	17.82	10	25	33
	4	1	2	16	47.41	31.61	31.44	63.15	32.77	22.82	17.82	15	38	50
		5	2	16	51.41	33.11	33.13	63.15	32.77	22.82	17.82	15	38	50
	5	1	1	20	55.06	39.68	39.45	76.30	41.55	29.65	24.65	19	43	55
		5	1	20	59.32	41.39	41.32	76.30	41.55	29.65	24.65	19	43	55

1500 CHARACTER DATA RECORD 40K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	2	8	61.83	41.45	41.10	88.15	44.77	30.82	23.32	3	8	12	
		5	2	8	65.17	42.28	42.35	88.15	44.77	30.82	23.32	3	8	12	
		1	1	12	69.62	49.47	49.08	101.30	53.55	37.65	30.15	6	16	21	
	4	5	1	12	73.44	50.78	50.66	101.30	53.55	37.65	30.15	6	16	21	
		1	1	12	69.62	49.60	49.19	101.30	53.55	37.65	30.15	10	24	31	
		5	1	12	73.44	51.25	51.05	101.30	53.55	37.65	30.15	10	24	31	
	5	1	1	12	69.62	49.74	49.32	101.30	53.55	37.65	30.15	13	32	42	
		5	1	12	73.44	51.66	51.40	101.30	53.55	37.65	30.15	13	32	42	
	10	2	1	2	8	61.99	41.50	41.17	88.15	44.77	30.82	23.32	3	8	12
			5	2	8	65.31	42.32	42.40	88.15	44.77	30.82	23.32	3	8	12
3		1	1	12	69.80	49.55	49.17	101.30	53.55	37.65	30.15	6	16	21	
		5	1	12	73.61	50.83	50.74	101.30	53.55	37.65	30.15	6	16	21	
4		1	1	12	69.80	49.69	49.30	101.30	53.55	37.65	30.15	10	24	31	
		5	1	12	73.61	51.33	51.14	101.30	53.55	37.65	30.15	10	24	31	
5		1	1	12	69.80	49.85	49.44	101.30	53.55	37.65	30.15	13	32	42	
		5	1	12	73.61	51.74	51.50	101.30	53.55	37.65	30.15	13	32	42	
20		2	1	2	8	62.32	41.60	41.32	88.15	44.77	30.82	23.32	3	8	12
			5	2	8	65.59	42.39	42.51	88.15	44.77	30.82	23.32	3	8	12
	3	1	1	12	70.17	49.71	49.36	101.30	53.55	37.65	30.15	6	16	21	
		5	1	12	73.93	50.95	50.88	101.30	53.55	37.65	30.15	6	16	21	
	4	1	1	12	70.17	49.89	49.51	101.30	53.55	37.65	30.15	10	24	31	
		5	1	12	73.93	51.47	51.30	101.30	53.55	37.65	30.15	10	24	31	
	5	1	1	12	70.17	50.08	49.69	101.30	53.55	37.65	30.15	13	32	42	
		5	1	12	73.93	51.91	51.68	101.30	53.55	37.65	30.15	13	32	42	
	40	2	1	2	8	62.96	41.79	41.60	88.15	44.77	30.82	23.32	3	8	12
			5	2	8	66.15	42.54	42.73	88.15	44.77	30.82	23.32	3	8	12
3		1	1	12	70.91	50.03	49.75	101.30	53.55	37.65	30.15	6	16	21	
		5	1	12	74.57	51.19	51.16	101.30	53.55	37.65	30.15	6	16	21	
4		1	1	12	70.91	50.27	49.94	101.30	53.55	37.65	30.15	10	24	31	
		5	1	12	74.57	51.77	51.63	101.30	53.55	37.65	30.15	10	24	31	
5		1	1	12	70.91	50.54	50.18	101.30	53.55	37.65	30.15	13	32	42	
		5	1	12	74.57	52.26	52.05	101.30	53.55	37.65	30.15	13	32	42	

2000 CHARACTER DATA RECORD 40K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	1	8	85.81	60.09	59.60	126.30	65.55	45.65	35.65	2	6	8	
		5	1	8	89.15	60.92	60.85	126.30	65.55	45.65	35.65	2	6	8	
		1	1	8	85.81	60.34	59.81	126.30	65.55	45.65	35.65	5	12	16	
	4	5	1	8	89.15	61.65	61.40	126.30	65.55	45.65	35.65	5	12	16	
		1	1	8	85.81	60.47	59.92	126.30	65.55	45.65	35.65	7	19	25	
10	2	1	1	8	85.97	60.14	59.68	126.30	65.55	45.65	35.65	7	19	25	
		5	1	8	89.29	60.96	60.90	126.30	65.55	45.65	35.65	2	6	8	
	3	1	1	8	85.97	60.42	59.91	126.30	65.55	45.65	35.65	2	6	8	
		5	1	8	89.29	61.71	61.47	126.30	65.55	45.65	35.65	5	12	16	
	4	1	1	8	85.97	60.56	60.03	126.30	65.55	45.65	35.65	5	12	16	
		5	1	8	89.29	62.20	61.87	126.30	65.55	45.65	35.65	7	19	25	
	20	2	1	1	8	86.29	60.24	59.82	126.30	65.55	45.65	35.65	2	6	8
			5	1	8	89.57	61.03	61.01	126.30	65.55	45.65	35.65	2	6	8
		3	1	1	8	86.29	60.58	60.10	126.30	65.55	45.65	35.65	2	6	8
			5	1	8	89.57	61.82	61.61	126.30	65.55	45.65	35.65	5	12	16
4		1	1	8	86.29	60.76	60.24	126.30	65.55	45.65	35.65	5	12	16	
	5	1	8	89.57	62.35	62.03	126.30	65.55	45.65	35.65	7	19	25		
40	2	1	1	8	86.94	60.43	60.11	126.30	65.55	45.65	35.65	2	6	8	
		5	1	8	90.13	61.18	61.23	126.30	65.55	45.65	35.65	2	6	8	
	3	1	1	8	86.94	60.90	60.48	126.30	65.55	45.65	35.65	2	6	8	
		5	1	8	90.13	62.06	61.89	126.30	65.55	45.65	35.65	5	12	16	
	4	1	1	8	86.94	61.14	60.67	126.30	65.55	45.65	35.65	5	12	16	
		5	1	8	90.13	62.64	62.36	126.30	65.55	45.65	35.65	7	19	25	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME						TAPE TIME				MAXIMUM NUMBER OF		
			B	G	MILLISECONDS/RECORD			MILLISECONDS/RECORD				RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	300	672	10.93	1.52	1.61	1.08	.53	.36	.26	269	717	1003	
		5	300	672	19.62	2.35	2.86	1.08	.53	.36	.26	269	717	1003	
	3	1	262	774	11.13	1.77	1.83	1.10	.54	.37	.27	536	1421	1981	
		5	262	774	19.99	3.08	3.41	1.10	.54	.37	.27	536	1421	1981	
	4	1	210	912	11.36	1.92	1.95	1.12	.56	.38	.28	799	2093	2898	
		5	210	912	20.42	3.57	3.82	1.12	.56	.38	.28	799	2093	2898	
	5	1	175	1006	11.50	2.07	2.09	1.15	.58	.39	.29	1058	2742	3769	
		5	175	1006	20.68	3.99	4.18	1.15	.58	.39	.29	1058	2742	3769	
	10	2	1	300	672	11.34	1.57	1.69	1.08	.53	.36	.26	269	717	1003
			5	300	672	19.99	2.38	2.91	1.08	.53	.36	.26	269	717	1003
3		1	262	774	11.54	1.85	1.92	1.10	.54	.37	.27	536	1421	1981	
		5	262	774	20.36	3.14	3.49	1.10	.54	.37	.27	536	1421	1981	
4		1	210	912	11.78	2.01	2.06	1.12	.56	.38	.28	799	2093	2898	
		5	210	912	20.79	3.65	3.90	1.12	.56	.38	.28	799	2093	2898	
5		1	175	1006	11.93	2.19	2.22	1.15	.58	.39	.29	1058	2742	3769	
		5	175	1006	21.06	4.08	4.28	1.15	.58	.39	.29	1058	2742	3769	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME						TAPE TIME				MAXIMUM NUMBER OF		
			B	G	MILLISECONDS/RECORD			MILLISECONDS/RECORD				RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	200	504	10.91	1.76	1.85	1.63	.80	.54	.39	179	478	669	
		5	200	504	19.26	2.59	3.10	1.63	.80	.54	.39	179	478	669	
	3	1	175	580	11.11	2.02	2.07	1.65	.82	.55	.40	357	947	1321	
		5	175	580	19.62	3.33	3.66	1.65	.82	.55	.40	357	947	1321	
	4	1	140	684	11.35	2.17	2.20	1.68	.84	.57	.42	532	1395	1932	
		5	140	684	20.06	3.83	4.07	1.68	.84	.57	.42	532	1395	1932	
	5	1	116	756	11.50	2.33	2.35	1.72	.87	.59	.44	705	1827	2511	
		5	116	756	20.33	4.25	4.44	1.72	.87	.59	.44	705	1827	2511	
	10	2	1	200	504	11.30	1.81	1.93	1.63	.80	.54	.39	179	478	669
			5	200	504	19.60	2.63	3.15	1.63	.80	.54	.39	179	478	669
3		1	175	580	11.51	2.10	2.17	1.65	.82	.55	.40	357	947	1321	
		5	175	580	19.97	3.39	3.73	1.65	.82	.55	.40	357	947	1321	
4		1	140	684	11.75	2.27	2.31	1.68	.84	.57	.42	532	1395	1932	
		5	140	684	20.42	3.90	4.15	1.68	.84	.57	.42	532	1395	1932	
5		1	116	756	11.91	2.45	2.48	1.72	.87	.59	.44	705	1827	2511	
		5	116	756	20.70	4.34	4.54	1.72	.87	.59	.44	705	1827	2511	
20		2	1	200	504	12.08	1.91	2.07	1.63	.80	.54	.39	179	478	669
			5	200	504	20.30	2.70	3.26	1.63	.80	.54	.39	179	478	669
	3	1	175	580	12.30	2.26	2.36	1.65	.82	.55	.40	357	947	1321	
		5	175	580	20.68	3.50	3.87	1.65	.82	.55	.40	357	947	1321	
	4	1	140	684	12.57	2.46	2.53	1.68	.84	.57	.42	532	1395	1932	
		5	140	684	21.15	4.05	4.32	1.68	.84	.57	.42	532	1395	1932	
	5	1	116	756	12.74	2.68	2.73	1.72	.87	.59	.44	705	1827	2511	
		5	116	756	21.44	4.51	4.72	1.72	.87	.59	.44	705	1827	2511	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME						TAPE TIME				MAXIMUM NUMBER OF		
			B	G	MILLISECONDS/RECORD			MILLISECONDS/RECORD				RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	150	404	10.98	2.01	2.10	2.17	1.07	.73	.53	134	358	501	
		5	150	404	19.06	2.83	3.34	2.17	1.07	.73	.53	134	358	501	
	3	1	131	464	11.18	2.26	2.32	2.20	1.09	.74	.54	268	710	990	
		5	131	464	19.42	3.57	3.90	2.20	1.09	.74	.54	268	710	990	
	4	1	105	548	11.42	2.42	2.46	2.25	1.12	.77	.57	399	1046	1449	
		5	105	548	19.87	4.08	4.32	2.25	1.12	.77	.57	399	1046	1449	
	5	1	87	604	11.58	2.59	2.61	2.30	1.16	.79	.59	529	1370	1883	
		5	87	604	20.14	4.52	4.70	2.30	1.16	.79	.59	529	1370	1883	
	10	2	1	150	404	11.36	2.05	2.17	2.17	1.07	.73	.53	134	358	501
			5	150	404	19.39	2.87	3.39	2.17	1.07	.73	.53	134	358	501
3		1	131	464	11.56	2.34	2.41	2.20	1.09	.74	.54	268	710	990	
		5	131	464	19.76	3.63	3.97	2.20	1.09	.74	.54	268	710	990	
4		1	105	548	11.82	2.52	2.56	2.25	1.12	.77	.57	399	1046	1449	
		5	105	548	20.22	4.16	4.40	2.25	1.12	.77	.57	399	1046	1449	
5		1	87	604	11.98	2.71	2.74	2.30	1.16	.79	.59	529	1370	1883	
		5	87	604	20.50	4.60	4.80	2.30	1.16	.79	.59	529	1370	1883	
20		2	1	150	404	12.11	2.15	2.31	2.17	1.07	.73	.53	134	358	501
			5	150	404	20.06	2.94	3.50	2.17	1.07	.73	.53	134	358	501
	3	1	131	464	12.33	2.50	2.60	2.20	1.09	.74	.54	268	710	990	
		5	131	464	20.45	3.75	4.12	2.20	1.09	.74	.54	268	710	990	
	4	1	105	548	12.61	2.71	2.78	2.25	1.12	.77	.57	399	1046	1449	
		5	105	548	20.92	4.30	4.57	2.25	1.12	.77	.57	399	1046	1449	
	5	1	87	604	12.78	2.94	2.99	2.30	1.16	.79	.59	529	1370	1883	
		5	87	604	21.21	4.77	4.98	2.30	1.16	.79	.59	529	1370	1883	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	120	336	11.10	2.25	2.34	2.71	1.34	.91	.66	107	286	401	
		5	120	336	18.95	3.08	3.58	2.71	1.34	.91	.66	107	286	401	
	3	1	105	386	11.30	2.51	2.56	2.75	1.36	.93	.68	214	568	792	
		5	105	386	19.32	3.82	4.15	2.75	1.36	.93	.68	214	568	792	
	4	1	84	456	11.55	2.68	2.71	2.81	1.40	.96	.71	319	837	1159	
		5	84	456	19.77	4.34	4.57	2.81	1.40	.96	.71	319	837	1159	
	5	1	70	502	11.71	2.86	2.87	2.87	1.45	.99	.74	423	1096	1507	
		5	70	502	20.05	4.78	4.96	2.87	1.45	.99	.74	423	1096	1507	
	10	2	1	120	336	11.46	2.30	2.41	2.71	1.34	.91	.66	107	286	401
			5	120	336	19.28	3.11	3.63	2.71	1.34	.91	.66	107	286	401
3		1	105	386	11.67	2.59	2.65	2.75	1.36	.93	.68	214	568	792	
		5	105	386	19.65	3.88	4.22	2.75	1.36	.93	.68	214	568	792	
4		1	84	456	11.93	2.78	2.82	2.81	1.40	.96	.71	319	837	1159	
		5	84	456	20.11	4.41	4.66	2.81	1.40	.96	.71	319	837	1159	
5		1	70	502	12.10	2.97	3.00	2.87	1.45	.99	.74	423	1096	1507	
		5	70	502	20.40	4.86	5.05	2.87	1.45	.99	.74	423	1096	1507	
20		2	1	120	336	12.20	2.39	2.55	2.71	1.34	.91	.66	107	286	401
			5	120	336	19.93	3.19	3.74	2.71	1.34	.91	.66	107	286	401
	3	1	105	386	12.42	2.75	2.85	2.75	1.36	.93	.68	214	568	792	
		5	105	386	20.32	4.00	4.36	2.75	1.36	.93	.68	214	568	792	
	4	1	84	456	12.70	2.97	3.03	2.81	1.40	.96	.71	319	837	1159	
		5	84	456	20.80	4.56	4.82	2.81	1.40	.96	.71	319	837	1159	
	5	1	70	502	12.88	3.20	3.24	2.87	1.45	.99	.74	423	1096	1507	
		5	70	502	21.09	5.03	5.24	2.87	1.45	.99	.74	423	1096	1507	
	40	2	1	120	336	13.67	2.59	2.84	2.71	1.34	.91	.66	107	286	401
			5	120	336	21.24	3.33	3.96	2.71	1.34	.91	.66	107	286	401
3		1	105	386	13.92	3.07	3.23	2.75	1.36	.93	.68	214	568	792	
		5	105	386	21.65	4.23	4.64	2.75	1.36	.93	.68	214	568	792	
4		1	84	456	14.24	3.35	3.46	2.81	1.40	.96	.71	319	837	1159	
		5	84	456	22.17	4.85	5.15	2.81	1.40	.96	.71	319	837	1159	
5		1	70	502	14.44	3.66	3.74	2.87	1.45	.99	.74	423	1096	1507	
		5	70	502	22.48	5.38	5.61	2.87	1.45	.99	.74	423	1096	1507	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	100	288	11.25	2.49	2.58	3.26	1.61	1.09	.79	89	239	334	
		5	100	288	18.92	3.32	3.82	3.26	1.61	1.09	.79	89	239	334	
	3	1	87	332	11.46	2.76	2.80	3.30	1.64	1.11	.81	178	473	660	
		5	87	332	19.30	4.07	4.39	3.30	1.64	1.11	.81	178	473	660	
	4	1	70	390	11.71	2.93	2.96	3.37	1.69	1.15	.85	266	697	966	
		5	70	390	19.74	4.59	4.83	3.37	1.69	1.15	.85	266	697	966	
	5	1	58	432	11.89	3.12	3.13	3.45	1.74	1.19	.89	352	913	1255	
		5	58	432	20.05	5.04	5.22	3.45	1.74	1.19	.89	352	913	1255	
	10	2	1	100	288	11.61	2.54	2.65	3.26	1.61	1.09	.79	89	239	334
			5	100	288	19.24	3.36	3.88	3.26	1.61	1.09	.79	89	239	334
3		1	87	332	11.83	2.84	2.90	3.30	1.64	1.11	.81	178	473	660	
		5	87	332	19.62	4.13	4.46	3.30	1.64	1.11	.81	178	473	660	
4		1	70	390	12.09	3.03	3.07	3.37	1.69	1.15	.85	266	697	966	
		5	70	390	20.08	4.66	4.91	3.37	1.69	1.15	.85	266	697	966	
5		1	58	432	12.27	3.23	3.26	3.45	1.74	1.19	.89	352	913	1255	
		5	58	432	20.39	5.13	5.31	3.45	1.74	1.19	.89	352	913	1255	
20		2	1	100	288	12.33	2.64	2.79	3.26	1.61	1.09	.79	89	239	334
			5	100	288	19.88	3.43	3.98	3.26	1.61	1.09	.79	89	239	334
	3	1	87	332	12.56	3.00	3.09	3.30	1.64	1.11	.81	178	473	660	
		5	87	332	20.28	4.25	4.60	3.30	1.64	1.11	.81	178	473	660	
	4	1	70	390	12.84	3.22	3.28	3.37	1.69	1.15	.85	266	697	966	
		5	70	390	20.75	4.81	5.07	3.37	1.69	1.15	.85	266	697	966	
	5	1	58	432	13.04	3.47	3.50	3.45	1.74	1.19	.89	352	913	1255	
		5	58	432	21.07	5.30	5.50	3.45	1.74	1.19	.89	352	913	1255	
	40	2	1	100	288	13.77	2.83	3.08	3.26	1.61	1.09	.79	89	239	334
			5	100	288	21.15	3.58	4.20	3.26	1.61	1.09	.79	89	239	334
3		1	87	332	14.03	3.32	3.47	3.30	1.64	1.11	.81	178	473	660	
		5	87	332	21.58	4.48	4.89	3.30	1.64	1.11	.81	178	473	660	
4		1	70	390	14.35	3.61	3.71	3.37	1.69	1.15	.85	266	697	966	
		5	70	390	22.09	5.10	5.40	3.37	1.69	1.15	.85	266	697	966	
5		1	58	432	14.56	3.93	4.00	3.45	1.74	1.19	.89	352	913	1255	
		5	58	432	22.42	5.64	5.87	3.45	1.74	1.19	.89	352	913	1255	



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CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD						TAPE TIME MILLISECCNDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	85	254	11.44	2.74	2.82	3.80	1.88	1.28	.93	76	204	286	
		5	85	254	18.96	3.57	4.06	3.80	1.88	1.28	.93	76	204	286	
		1	75	290	11.64	3.00	3.05	3.85	1.91	1.30	.95	153	406	566	
	3	5	75	290	19.32	4.31	4.64	3.85	1.91	1.30	.95	153	406	566	
		1	60	342	11.91	3.19	3.21	3.93	1.97	1.34	.99	228	598	828	
		5	60	342	19.78	4.85	5.08	3.93	1.97	1.34	.99	228	598	828	
	5	1	50	376	12.08	3.38	3.39	4.02	2.03	1.39	1.04	302	783	1077	
		5	50	376	20.07	5.30	5.48	4.02	2.03	1.39	1.04	302	783	1077	
		1	85	254	11.80	2.78	2.89	3.80	1.88	1.28	.93	76	204	286	
	10	2	5	85	254	19.27	3.60	4.12	3.80	1.88	1.28	.93	76	204	286
			1	75	290	12.00	3.08	3.14	3.85	1.91	1.30	.95	153	406	566
			5	75	290	19.64	4.37	4.71	3.85	1.91	1.30	.95	153	406	566
		4	1	60	342	12.28	3.28	3.32	3.93	1.97	1.34	.99	228	598	828
			5	60	342	20.11	4.92	5.16	3.93	1.97	1.34	.99	228	598	828
			1	50	376	12.46	3.49	3.51	4.02	2.03	1.39	1.04	302	783	1077
5		5	50	376	20.40	5.39	5.57	4.02	2.03	1.39	1.04	302	783	1077	
		1	85	254	12.50	2.88	3.03	3.80	1.88	1.28	.93	76	204	286	
		5	85	254	19.90	3.68	4.23	3.80	1.88	1.28	.93	76	204	286	
20		3	1	75	290	12.72	3.25	3.33	3.85	1.91	1.30	.95	153	406	566
			5	75	290	20.28	4.49	4.85	3.85	1.91	1.30	.95	153	406	566
			1	60	342	13.01	3.48	3.53	3.93	1.97	1.34	.99	228	598	828
		4	5	60	342	20.77	5.07	5.32	3.93	1.97	1.34	.99	228	598	828
			1	50	376	13.20	3.73	3.76	4.02	2.03	1.39	1.04	302	783	1077
			5	50	376	21.07	5.56	5.76	4.02	2.03	1.39	1.04	302	783	1077
	40	2	1	85	254	13.91	3.07	3.32	3.80	1.88	1.28	.93	76	204	286
			5	85	254	21.15	3.82	4.45	3.80	1.88	1.28	.93	76	204	286
			1	75	290	14.16	3.57	3.72	3.85	1.91	1.30	.95	153	406	566
		3	5	75	290	21.56	4.73	5.13	3.85	1.91	1.30	.95	153	406	566
			1	60	342	14.49	3.86	3.96	3.93	1.97	1.34	.99	228	598	828
			5	60	342	22.08	5.36	5.65	3.93	1.97	1.34	.99	228	598	828
		5	1	50	376	14.70	4.19	4.26	4.02	2.03	1.39	1.04	302	783	1077
			5	50	376	22.40	5.90	6.13	4.02	2.03	1.39	1.04	302	783	1077

80 CHARACTER DATA RECORD 60K 1410

CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD						TAPE TIME MILLISECCNDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	75	224	11.64	2.98	3.06	4.35	2.15	1.46	1.06	67	179	250	
		5	75	224	19.00	3.81	4.30	4.35	2.15	1.46	1.06	67	179	250	
		1	65	260	11.86	3.25	3.29	4.40	2.19	1.49	1.09	134	355	494	
	3	5	65	260	19.41	4.56	4.88	4.40	2.19	1.49	1.09	134	355	494	
		1	52	306	12.13	3.44	3.47	4.50	2.25	1.54	1.14	199	523	723	
		5	52	306	19.87	5.10	5.33	4.50	2.25	1.54	1.14	199	523	723	
	5	1	43	338	12.32	3.65	3.66	4.61	2.32	1.59	1.19	264	684	940	
		5	43	338	20.18	5.57	5.74	4.61	2.32	1.59	1.19	264	684	940	
		1	75	224	11.98	3.03	3.13	4.35	2.15	1.46	1.06	67	179	250	
	10	2	5	75	224	19.31	3.84	4.36	4.35	2.15	1.46	1.06	67	179	250
			1	65	260	12.22	3.33	3.39	4.40	2.19	1.49	1.09	134	355	494
			5	65	260	19.72	4.62	4.95	4.40	2.19	1.49	1.09	134	355	494
		4	1	52	306	12.50	3.54	3.57	4.50	2.25	1.54	1.14	199	523	723
			5	52	306	20.19	5.18	5.41	4.50	2.25	1.54	1.14	199	523	723
			1	43	338	12.69	3.76	3.78	4.61	2.32	1.59	1.19	264	684	940
5		5	43	338	20.51	5.65	5.84	4.61	2.32	1.59	1.19	264	684	940	
		1	75	224	12.67	3.12	3.27	4.35	2.15	1.46	1.06	67	179	250	
		5	75	224	19.92	3.92	4.47	4.35	2.15	1.46	1.06	67	179	250	
20		3	1	65	260	12.92	3.49	3.58	4.40	2.19	1.49	1.09	134	355	494
			5	65	260	20.35	4.74	5.09	4.40	2.19	1.49	1.09	134	355	494
			1	52	306	13.22	3.73	3.79	4.50	2.25	1.54	1.14	199	523	723
		4	5	52	306	20.84	5.32	5.58	4.50	2.25	1.54	1.14	199	523	723
			1	43	338	13.43	3.99	4.03	4.61	2.32	1.59	1.19	264	684	940
			5	43	338	21.16	5.83	6.02	4.61	2.32	1.59	1.19	264	684	940
	40	2	1	75	224	14.06	3.32	3.56	4.35	2.15	1.46	1.06	67	179	250
			5	75	224	21.15	4.06	4.69	4.35	2.15	1.46	1.06	67	179	250
			1	65	260	14.34	3.82	3.96	4.40	2.19	1.49	1.09	134	355	494
		3	5	65	260	21.61	4.98	5.38	4.40	2.19	1.49	1.09	134	355	494
			1	52	306	14.67	4.12	4.22	4.50	2.25	1.54	1.14	199	523	723
			5	52	306	22.13	5.62	5.91	4.50	2.25	1.54	1.14	199	523	723
		5	1	43	338	14.90	4.46	4.52	4.61	2.32	1.59	1.19	264	684	940
			5	43	338	22.47	6.17	6.39	4.61	2.32	1.59	1.19	264	684	940

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CW LNG	MRG ORD	NO. CF	PROCESS TIME						TAPE TIME				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
			B	G	MILLISECONDS/RECORD			MILLISECONDS/RECORD				200 CPI	556 CPI	800 CPI		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI					
5	2	1	66	204	11.87	3.22	3.30	4.89	2.42	1.64	1.19	59	159	222		
		5	66	204	19.12	4.05	4.54	4.89	2.42	1.64	1.19	59	159	222		
		3	1	58	232	12.07	3.50	3.54	4.95	2.46	1.67	1.22	119	315	440	
	3	5	58	232	19.48	4.81	5.13	4.95	2.46	1.67	1.22	119	315	440		
		4	1	46	276	12.37	3.70	3.72	5.07	2.54	1.73	1.28	177	464	642	
		5	46	276	19.98	5.36	5.59	5.07	2.54	1.73	1.28	177	464	642		
	5	1	38	304	12.56	3.91	3.92	5.19	2.62	1.79	1.34	235	607	834		
		5	38	304	20.29	5.83	6.01	5.19	2.62	1.79	1.34	235	607	834		
		2	1	66	204	12.21	3.27	3.37	4.89	2.42	1.64	1.19	59	159	222	
	10	2	5	66	204	19.43	4.09	4.60	4.89	2.42	1.64	1.19	59	159	222	
			3	1	58	232	12.42	3.58	3.63	4.95	2.46	1.67	1.22	119	315	440
			5	58	232	19.79	4.87	5.20	4.95	2.46	1.67	1.22	119	315	440	
		4	1	46	276	12.72	3.80	3.83	5.07	2.54	1.73	1.28	177	464	642	
			5	46	276	20.30	5.43	5.67	5.07	2.54	1.73	1.28	177	464	642	
			5	38	304	12.92	4.03	4.04	5.19	2.62	1.79	1.34	235	607	834	
5		5	38	304	20.62	5.92	6.10	5.19	2.62	1.79	1.34	235	607	834		
		2	1	66	204	12.89	3.37	3.52	4.89	2.42	1.64	1.19	59	159	222	
		5	66	204	20.03	4.16	4.71	4.89	2.42	1.64	1.19	59	159	222		
20		3	1	58	232	13.12	3.74	3.82	4.95	2.46	1.67	1.22	119	315	440	
			5	58	232	20.40	4.99	5.34	4.95	2.46	1.67	1.22	119	315	440	
			4	1	46	276	13.44	3.99	4.04	5.07	2.54	1.73	1.28	177	464	642
		4	5	46	276	20.93	5.58	5.83	5.07	2.54	1.73	1.28	177	464	642	
			5	38	304	13.65	4.26	4.29	5.19	2.62	1.79	1.34	235	607	834	
			5	38	304	21.26	6.09	6.28	5.19	2.62	1.79	1.34	235	607	834	
	40	2	1	66	204	14.26	3.56	3.80	4.89	2.42	1.64	1.19	59	159	222	
			5	66	204	21.24	4.31	4.93	4.89	2.42	1.64	1.19	59	159	222	
			3	1	58	232	14.51	4.06	4.21	4.95	2.46	1.67	1.22	119	315	440
		3	5	58	232	21.64	5.22	5.62	4.95	2.46	1.67	1.22	119	315	440	
			4	1	46	276	14.87	4.37	4.47	5.07	2.54	1.73	1.28	177	464	642
			5	46	276	22.20	5.87	6.16	5.07	2.54	1.73	1.28	177	464	642	
		5	1	38	304	15.10	4.72	4.79	5.19	2.62	1.79	1.34	235	607	834	
			5	38	304	22.55	6.43	6.66	5.19	2.62	1.79	1.34	235	607	834	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME						TAPE TIME				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
			B	G	MILLISECONDS/RECORD			MILLISECONDS/RECORD				200 CPI	556 CPI	800 CPI		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI					
5	2	1	60	182	12.08	3.46	3.54	5.43	2.69	1.82	1.32	53	143	200		
		5	60	182	19.19	4.29	4.78	5.43	2.69	1.82	1.32	53	143	200		
		3	1	52	212	12.32	3.75	3.78	5.50	2.73	1.86	1.36	107	284	395	
	3	5	52	212	19.61	5.06	5.37	5.50	2.73	1.86	1.36	107	284	395		
		4	1	42	248	12.59	3.95	3.97	5.62	2.81	1.92	1.42	159	418	579	
		5	42	248	20.08	5.61	5.83	5.62	2.81	1.92	1.42	159	418	579		
	5	1	35	274	12.79	4.16	4.17	5.75	2.90	1.99	1.49	211	548	753		
		5	35	274	20.40	6.08	6.26	5.75	2.90	1.99	1.49	211	548	753		
		2	1	60	182	12.41	3.51	3.61	5.43	2.69	1.82	1.32	53	143	200	
	10	2	5	60	182	19.49	4.33	4.84	5.43	2.69	1.82	1.32	53	143	200	
			3	1	52	212	12.66	3.83	3.88	5.50	2.73	1.86	1.36	107	284	395
			5	52	212	19.92	5.12	5.44	5.50	2.73	1.86	1.36	107	284	395	
		4	1	42	248	12.94	4.05	4.07	5.62	2.81	1.92	1.42	159	418	579	
			5	42	248	20.39	5.68	5.91	5.62	2.81	1.92	1.42	159	418	579	
			5	35	274	13.15	4.28	4.29	5.75	2.90	1.99	1.49	211	548	753	
5		5	35	274	20.71	6.17	6.35	5.75	2.90	1.99	1.49	211	548	753		
		2	1	60	182	13.08	3.61	3.75	5.43	2.69	1.82	1.32	53	143	200	
		5	60	182	20.08	4.40	4.95	5.43	2.69	1.82	1.32	53	143	200		
20		3	1	52	212	13.35	3.99	4.07	5.50	2.73	1.86	1.36	107	284	395	
			5	52	212	20.53	5.23	5.58	5.50	2.73	1.86	1.36	107	284	395	
			4	1	42	248	13.64	4.24	4.29	5.62	2.81	1.92	1.42	159	418	579
		4	5	42	248	21.01	5.83	6.08	5.62	2.81	1.92	1.42	159	418	579	
			5	35	274	13.86	4.51	4.54	5.75	2.90	1.99	1.49	211	548	753	
			5	35	274	21.35	6.34	6.53	5.75	2.90	1.99	1.49	211	548	753	
	40	2	1	60	182	14.42	3.80	4.04	5.43	2.69	1.82	1.32	53	143	200	
			5	60	182	21.27	4.55	5.17	5.43	2.69	1.82	1.32	53	143	200	
			3	1	52	212	14.72	4.31	4.45	5.50	2.73	1.86	1.36	107	284	395
		3	5	52	212	21.74	5.47	5.87	5.50	2.73	1.86	1.36	107	284	395	
			4	1	42	248	15.05	4.62	4.72	5.62	2.81	1.92	1.42	159	418	579
			5	42	248	22.26	6.12	6.41	5.62	2.81	1.92	1.42	159	418	579	
		5	1	35	274	15.29	4.97	5.04	5.75	2.90	1.99	1.49	211	548	753	
			5	35	274	22.62	6.69	6.91	5.75	2.90	1.99	1.49	211	548	753	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD						TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	50	154	12.58	3.95	4.02	6.52	3.23	2.19	1.59	44	119	167	
		5	50	154	19.49	4.78	5.26	6.52	3.23	2.19	1.59	44	119	167	
		1	43	180	12.83	4.24	4.28	6.61	3.28	2.23	1.63	89	236	329	
	3	5	43	180	19.93	5.56	5.86	6.61	3.28	2.23	1.63	89	236	329	
		1	35	210	13.11	4.46	4.47	6.75	3.38	2.31	1.71	133	348	483	
		5	35	210	20.39	6.12	6.34	6.75	3.38	2.31	1.71	133	348	483	
	4	1	29	232	13.33	4.69	4.69	6.90	3.48	2.39	1.79	176	456	627	
		5	29	232	20.73	6.61	6.78	6.90	3.48	2.39	1.79	176	456	627	
		1	50	154	12.90	4.00	4.09	6.52	3.23	2.19	1.59	44	119	167	
	10	2	5	50	154	19.77	4.82	5.32	6.52	3.23	2.19	1.59	44	119	167
			1	43	180	13.16	4.32	4.37	6.61	3.28	2.23	1.63	89	236	329
			5	43	180	20.22	5.61	5.93	6.61	3.28	2.23	1.63	89	236	329
		3	1	35	210	13.45	4.55	4.58	6.75	3.38	2.31	1.71	133	348	483
			5	35	210	20.70	6.19	6.42	6.75	3.38	2.31	1.71	133	348	483
			1	29	232	13.67	4.80	4.81	6.90	3.48	2.39	1.79	176	456	627
4		5	29	232	21.04	6.70	6.87	6.90	3.48	2.39	1.79	176	456	627	
		1	50	154	13.55	4.10	4.23	6.52	3.23	2.19	1.59	44	119	167	
		5	50	154	20.35	4.89	5.43	6.52	3.23	2.19	1.59	44	119	167	
20		2	1	43	180	13.83	4.49	4.56	6.61	3.28	2.23	1.63	89	236	329
			5	43	180	20.82	5.73	6.08	6.61	3.28	2.23	1.63	89	236	329
			1	35	210	14.14	4.75	4.79	6.75	3.38	2.31	1.71	133	348	483
		3	5	35	210	21.30	6.34	6.58	6.75	3.38	2.31	1.71	133	348	483
			1	29	232	14.37	5.04	5.06	6.90	3.48	2.39	1.79	176	456	627
			5	29	232	21.66	6.87	7.06	6.90	3.48	2.39	1.79	176	456	627
	40	2	1	50	154	14.85	4.29	4.52	6.52	3.23	2.19	1.59	44	119	167
			5	50	154	21.50	5.04	5.65	6.52	3.23	2.19	1.59	44	119	167
			1	43	180	15.16	4.81	4.94	6.61	3.28	2.23	1.63	89	236	329
		3	5	43	180	22.00	5.97	6.36	6.61	3.28	2.23	1.63	89	236	329
			1	35	210	15.50	5.13	5.22	6.75	3.38	2.31	1.71	133	348	483
			5	35	210	22.52	6.63	6.91	6.75	3.38	2.31	1.71	133	348	483
		4	1	29	232	15.76	5.50	5.56	6.90	3.48	2.39	1.79	176	456	627
			5	29	232	22.89	7.21	7.43	6.90	3.48	2.39	1.79	176	456	627

140 CHARACTER DATA RECORD 60K 1410

CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD						TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	42	136	13.14	4.44	4.51	7.62	3.77	2.56	1.86	38	102	143	
		5	42	136	19.90	5.27	5.75	7.62	3.77	2.56	1.86	38	102	143	
		1	37	156	13.36	4.74	4.76	7.71	3.83	2.60	1.90	76	202	282	
	3	5	37	156	20.29	6.05	6.35	7.71	3.83	2.60	1.90	76	202	282	
		1	30	182	13.66	4.97	4.97	7.87	3.94	2.69	1.99	114	299	414	
		5	30	182	20.77	6.62	6.84	7.87	3.94	2.69	1.99	114	299	414	
	4	1	25	200	13.88	5.21	5.20	8.05	4.06	2.78	2.08	151	391	538	
		5	25	200	21.11	7.13	7.29	8.05	4.06	2.78	2.08	151	391	538	
		1	42	136	13.45	4.49	4.58	7.62	3.77	2.56	1.86	38	102	143	
	10	2	5	42	136	20.18	5.31	5.81	7.62	3.77	2.56	1.86	38	102	143
			1	37	156	13.69	4.82	4.86	7.71	3.83	2.60	1.90	76	202	282
			5	37	156	20.58	6.11	6.42	7.71	3.83	2.60	1.90	76	202	282
		3	1	30	182	13.99	5.06	5.08	7.87	3.94	2.69	1.99	114	299	414
			5	30	182	21.07	6.70	6.92	7.87	3.94	2.69	1.99	114	299	414
			1	25	200	14.22	5.33	5.33	8.05	4.06	2.78	2.08	151	391	538
4		5	25	200	21.41	7.22	7.38	8.05	4.06	2.78	2.08	151	391	538	
		1	42	136	14.09	4.59	4.72	7.62	3.77	2.56	1.86	38	102	143	
		5	42	136	20.74	5.38	5.92	7.62	3.77	2.56	1.86	38	102	143	
20		2	1	37	156	14.34	4.98	5.05	7.71	3.83	2.60	1.90	76	202	282
			5	37	156	21.16	6.22	6.56	7.71	3.83	2.60	1.90	76	202	282
			1	30	182	14.66	5.26	5.30	7.87	3.94	2.69	1.99	114	299	414
		3	5	30	182	21.66	6.84	7.09	7.87	3.94	2.69	1.99	114	299	414
			1	25	200	14.90	5.56	5.58	8.05	4.06	2.78	2.08	151	391	538
			5	25	200	22.01	7.39	7.57	8.05	4.06	2.78	2.08	151	391	538
	40	2	1	42	136	15.36	4.78	5.01	7.62	3.77	2.56	1.86	38	102	143
			5	42	136	21.87	5.53	6.14	7.62	3.77	2.56	1.86	38	102	143
			1	37	156	15.64	5.30	5.43	7.71	3.83	2.60	1.90	76	202	282
		3	5	37	156	22.31	6.46	6.85	7.71	3.83	2.60	1.90	76	202	282
			1	30	182	16.00	5.64	5.72	7.87	3.94	2.69	1.99	114	299	414
			5	30	182	22.85	7.14	7.41	7.87	3.94	2.69	1.99	114	299	414
		4	1	25	200	16.25	6.02	6.07	8.05	4.06	2.78	2.08	151	391	538
			5	25	200	23.21	7.73	7.94	8.05	4.06	2.78	2.08	151	391	538

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	37	120	13.69	4.93	4.99	8.71	4.31	2.92	2.12	33	89	125	
		5	37	120	20.30	5.76	6.23	8.71	4.31	2.92	2.12	33	89	125	
	3	1	32	138	13.93	5.24	5.26	8.82	4.38	2.98	2.18	67	177	247	
		5	32	138	20.71	6.55	6.85	8.82	4.38	2.98	2.18	67	177	247	
	4	1	26	162	14.25	5.48	5.48	9.01	4.51	3.08	2.28	99	261	361	
		5	26	162	21.22	7.14	7.35	9.01	4.51	3.08	2.28	99	261	361	
	5	1	21	180	14.52	5.76	5.75	9.25	4.67	3.21	2.41	132	341	468	
		5	21	180	21.62	7.68	7.84	9.25	4.67	3.21	2.41	132	341	468	
	10	2	1	37	120	14.00	4.98	5.06	8.71	4.31	2.92	2.12	33	89	125
			5	37	120	20.57	5.79	6.29	8.71	4.31	2.92	2.12	33	89	125
3		1	32	138	14.25	5.32	5.35	8.82	4.38	2.98	2.18	67	177	247	
		5	32	138	20.99	6.61	6.92	8.82	4.38	2.98	2.18	67	177	247	
4		1	26	162	14.57	5.58	5.59	9.01	4.51	3.08	2.28	99	261	361	
		5	26	162	21.51	7.21	7.43	9.01	4.51	3.08	2.28	99	261	361	
5		1	21	180	14.85	5.88	5.88	9.25	4.67	3.21	2.41	132	341	468	
		5	21	180	21.91	7.77	7.93	9.25	4.67	3.21	2.41	132	341	468	
20		2	1	37	120	14.62	5.07	5.20	8.71	4.31	2.92	2.12	33	89	125
			5	37	120	21.12	5.87	6.40	8.71	4.31	2.92	2.12	33	89	125
	3	1	32	138	14.89	5.48	5.54	8.82	4.38	2.98	2.18	67	177	247	
		5	32	138	21.56	6.72	7.06	8.82	4.38	2.98	2.18	67	177	247	
	4	1	26	162	15.23	5.77	5.80	9.01	4.51	3.08	2.28	99	261	361	
		5	26	162	22.09	7.36	7.59	9.01	4.51	3.08	2.28	99	261	361	
	5	1	21	180	15.52	6.11	6.12	9.25	4.67	3.21	2.41	132	341	468	
		5	21	180	22.51	7.94	8.12	9.25	4.67	3.21	2.41	132	341	468	
	40	2	1	37	120	15.87	5.27	5.49	8.71	4.31	2.92	2.12	33	89	125
			5	37	120	22.23	6.01	6.62	8.71	4.31	2.92	2.12	33	89	125
3		1	32	138	16.16	5.80	5.93	8.82	4.38	2.98	2.18	67	177	247	
		5	32	138	22.69	6.96	7.34	8.82	4.38	2.98	2.18	67	177	247	
4		1	26	162	16.54	6.15	6.23	9.01	4.51	3.08	2.28	99	261	361	
		5	26	162	23.25	7.65	7.92	9.01	4.51	3.08	2.28	99	261	361	
5		1	21	180	16.85	6.57	6.62	9.25	4.67	3.21	2.41	132	341	468	
		5	21	180	23.69	8.28	8.49	9.25	4.67	3.21	2.41	132	341	468	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	33	106	14.24	5.41	5.47	9.79	4.85	3.29	2.39	29	79	111	
		5	33	106	20.70	6.24	6.71	9.79	4.85	3.29	2.39	29	79	111	
	3	1	29	122	14.48	5.72	5.74	9.90	4.92	3.35	2.45	59	157	220	
		5	29	122	21.11	7.03	7.33	9.90	4.92	3.35	2.45	59	157	220	
	4	1	23	144	14.83	5.99	5.99	10.14	5.08	3.47	2.57	88	232	321	
		5	23	144	21.66	7.65	7.86	10.14	5.08	3.47	2.57	88	232	321	
	5	1	19	160	15.10	6.27	6.26	10.38	5.24	3.59	2.69	117	303	417	
		5	19	160	22.06	8.20	8.35	10.38	5.24	3.59	2.69	117	303	417	
	10	2	1	33	106	14.54	5.46	5.54	9.79	4.85	3.29	2.39	29	79	111
			5	33	106	20.97	6.28	6.77	9.79	4.85	3.29	2.39	29	79	111
3		1	29	122	14.80	5.80	5.83	9.90	4.92	3.35	2.45	59	157	220	
		5	29	122	21.39	7.09	7.40	9.90	4.92	3.35	2.45	59	157	220	
4		1	23	144	15.15	6.09	6.10	10.14	5.08	3.47	2.57	88	232	321	
		5	23	144	21.95	7.72	7.94	10.14	5.08	3.47	2.57	88	232	321	
5		1	19	160	15.43	6.39	6.38	10.38	5.24	3.59	2.69	117	303	417	
		5	19	160	22.35	8.28	8.44	10.38	5.24	3.59	2.69	117	303	417	
20		2	1	33	106	15.15	5.56	5.68	9.79	4.85	3.29	2.39	29	79	111
			5	33	106	21.51	6.35	6.88	9.79	4.85	3.29	2.39	29	79	111
	3	1	29	122	15.42	5.96	6.02	9.90	4.92	3.35	2.45	59	157	220	
		5	29	122	21.94	7.21	7.54	9.90	4.92	3.35	2.45	59	157	220	
	4	1	23	144	15.80	6.28	6.31	10.14	5.08	3.47	2.57	88	232	321	
		5	23	144	22.52	7.87	8.10	10.14	5.08	3.47	2.57	88	232	321	
	5	1	19	160	16.09	6.62	6.63	10.38	5.24	3.59	2.69	117	303	417	
		5	19	160	22.93	8.45	8.63	10.38	5.24	3.59	2.69	117	303	417	
	40	2	1	33	106	16.37	5.75	5.97	9.79	4.85	3.29	2.39	29	79	111
			5	33	106	22.59	6.50	7.10	9.79	4.85	3.29	2.39	29	79	111
3		1	29	122	16.67	6.28	6.41	9.90	4.92	3.35	2.45	59	157	220	
		5	29	122	23.05	7.44	7.82	9.90	4.92	3.35	2.45	59	157	220	
4		1	23	144	17.08	6.67	6.74	10.14	5.08	3.47	2.57	88	232	321	
		5	23	144	23.66	8.16	8.43	10.14	5.08	3.47	2.57	88	232	321	
5		1	19	160	17.39	7.08	7.13	10.38	5.24	3.59	2.69	117	303	417	
		5	19	160	24.09	8.80	9.00	10.38	5.24	3.59	2.69	117	303	417	

200 CHARACTER DATA RECORD 60K 1410

CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS					
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	30	96	14.82	5.90	5.94	10.87	5.38	3.65	2.65	26	71	100	
		5	30	96	21.16	6.72	7.19	10.87	5.38	3.65	2.65	26	71	100	
		3	1	26	110	15.07	6.22	6.23	11.01	5.47	3.72	2.72	53	142	197
	4	1	21	130	15.43	6.49	6.48	11.25	5.63	3.85	2.85	79	209	289	
		5	21	130	22.13	8.15	8.35	11.25	5.63	3.85	2.85	79	209	289	
		5	17	144	15.72	6.81	6.78	11.54	5.83	4.00	3.00	105	273	375	
	5	1	17	144	22.55	8.73	8.87	11.54	5.83	4.00	3.00	105	273	375	
		5	17	144	22.55	8.73	8.87	11.54	5.83	4.00	3.00	105	273	375	
		5	17	144	22.55	8.73	8.87	11.54	5.83	4.00	3.00	105	273	375	
	10	2	1	30	96	15.12	5.94	6.02	10.87	5.38	3.65	2.65	26	71	100
			5	30	96	21.43	6.76	7.24	10.87	5.38	3.65	2.65	26	71	100
			3	1	26	110	15.38	6.30	6.32	11.01	5.47	3.72	2.72	53	142
		4	1	21	130	15.74	6.59	6.59	11.25	5.63	3.85	2.85	79	209	289
			5	21	130	22.41	8.22	8.43	11.25	5.63	3.85	2.85	79	209	289
			5	17	144	16.05	6.92	6.91	11.54	5.83	4.00	3.00	105	273	375
5		1	17	144	22.84	8.81	8.97	11.54	5.83	4.00	3.00	105	273	375	
		5	17	144	22.84	8.81	8.97	11.54	5.83	4.00	3.00	105	273	375	
		5	17	144	22.84	8.81	8.97	11.54	5.83	4.00	3.00	105	273	375	
20		2	1	30	96	15.72	6.04	6.16	10.87	5.38	3.65	2.65	26	71	100
			5	30	96	21.95	6.83	7.35	10.87	5.38	3.65	2.65	26	71	100
			3	1	26	110	15.99	6.46	6.51	11.01	5.47	3.72	2.72	53	142
		4	1	21	130	16.37	6.78	6.81	11.25	5.63	3.85	2.85	79	209	289
			5	21	130	22.97	8.37	8.60	11.25	5.63	3.85	2.85	79	209	289
			5	17	144	16.69	7.15	7.16	11.54	5.83	4.00	3.00	105	273	375
	5	1	17	144	23.41	8.98	9.15	11.54	5.83	4.00	3.00	105	273	375	
		5	17	144	23.41	8.98	9.15	11.54	5.83	4.00	3.00	105	273	375	
		5	17	144	23.41	8.98	9.15	11.54	5.83	4.00	3.00	105	273	375	
	40	2	1	30	96	16.91	6.23	6.45	10.87	5.38	3.65	2.65	26	71	100
			5	30	96	23.01	6.98	7.57	10.87	5.38	3.65	2.65	26	71	100
			3	1	26	110	17.22	6.78	6.90	11.01	5.47	3.72	2.72	53	142
		4	1	21	130	17.64	7.17	7.23	11.25	5.63	3.85	2.85	79	209	289
			5	21	130	24.09	8.66	8.92	11.25	5.63	3.85	2.85	79	209	289
			5	17	144	17.97	7.61	7.65	11.54	5.83	4.00	3.00	105	273	375
5		1	17	144	24.55	9.33	9.52	11.54	5.83	4.00	3.00	105	273	375	
		5	17	144	24.55	9.33	9.52	11.54	5.83	4.00	3.00	105	273	375	
		5	17	144	24.55	9.33	9.52	11.54	5.83	4.00	3.00	105	273	375	

220 CHARACTER DATA RECORD 60K 1410

CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS					
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	27	88	15.43	6.39	6.43	11.97	5.93	4.02	2.92	24	65	91	
		5	27	88	21.66	7.22	7.67	11.97	5.93	4.02	2.92	24	65	91	
		3	1	23	104	15.74	6.73	6.74	12.14	6.04	4.11	3.01	48	128	179
	4	1	19	118	16.04	7.00	6.99	12.38	6.20	4.23	3.13	72	190	263	
		5	19	118	22.63	8.66	8.86	12.38	6.20	4.23	3.13	72	190	263	
		5	15	134	16.41	7.36	7.34	12.75	6.45	4.43	3.33	96	247	339	
	5	1	15	134	23.15	9.28	9.42	12.75	6.45	4.43	3.33	96	247	339	
		5	15	134	23.15	9.28	9.42	12.75	6.45	4.43	3.33	96	247	339	
		5	15	134	23.15	9.28	9.42	12.75	6.45	4.43	3.33	96	247	339	
	10	2	1	27	88	15.72	6.44	6.50	11.97	5.93	4.02	2.92	24	65	91
			5	27	88	21.92	7.25	7.73	11.97	5.93	4.02	2.92	24	65	91
			3	1	23	104	16.04	6.81	6.83	12.14	6.04	4.11	3.01	48	128
		4	1	19	118	16.35	7.10	7.10	12.38	6.20	4.23	3.13	72	190	263
			5	19	118	22.90	8.74	8.94	12.38	6.20	4.23	3.13	72	190	263
			5	15	134	16.73	7.48	7.46	12.75	6.45	4.43	3.33	96	247	339
5		1	15	134	23.44	9.37	9.52	12.75	6.45	4.43	3.33	96	247	339	
		5	15	134	23.44	9.37	9.52	12.75	6.45	4.43	3.33	96	247	339	
		5	15	134	23.44	9.37	9.52	12.75	6.45	4.43	3.33	96	247	339	
20		2	1	27	88	16.31	6.53	6.65	11.97	5.93	4.02	2.92	24	65	91
			5	27	88	22.44	7.33	7.84	11.97	5.93	4.02	2.92	24	65	91
			3	1	23	104	16.65	6.97	7.02	12.14	6.04	4.11	3.01	48	128
		4	1	19	118	16.97	7.29	7.31	12.38	6.20	4.23	3.13	72	190	263
			5	19	118	23.45	8.88	9.10	12.38	6.20	4.23	3.13	72	190	263
			5	15	134	17.36	7.71	7.71	12.75	6.45	4.43	3.33	96	247	339
	5	1	15	134	24.00	9.54	9.70	12.75	6.45	4.43	3.33	96	247	339	
		5	15	134	24.00	9.54	9.70	12.75	6.45	4.43	3.33	96	247	339	
		5	15	134	24.00	9.54	9.70	12.75	6.45	4.43	3.33	96	247	339	
	40	2	1	27	88	17.49	6.72	6.93	11.97	5.93	4.02	2.92	24	65	91
			5	27	88	23.49	7.47	8.06	11.97	5.93	4.02	2.92	24	65	91
			3	1	23	104	17.87	7.29	7.40	12.14	6.04	4.11	3.01	48	128
		4	1	19	118	18.21	7.68	7.74	12.38	6.20	4.23	3.13	72	190	263
			5	19	118	24.55	9.17	9.43	12.38	6.20	4.23	3.13	72	190	263
			5	15	134	18.63	8.17	8.20	12.75	6.45	4.43	3.33	96	247	339
5		1	15	134	25.12	9.88	10.07	12.75	6.45	4.43	3.33	96	247	339	
		5	15	134	25.12	9.88	10.07	12.75	6.45	4.43	3.33	96	247	339	
		5	15	134	25.12	9.88	10.07	12.75	6.45	4.43	3.33	96	247	339	

240 CHARACTER DATA RECORD 60K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	25	80	16.01	6.87	6.91	13.05	6.46	4.38	3.18	22	59	83	
		5	25	80	22.13	7.70	8.15	13.05	6.46	4.38	3.18	22	59	83	
		1	21	96	16.36	7.23	7.23	13.25	6.59	4.49	3.29	44	118	164	
	3	5	21	96	22.70	8.54	8.82	13.25	6.59	4.49	3.29	44	118	164	
		1	17	110	16.71	7.53	7.52	13.54	6.79	4.64	3.44	66	174	240	
		5	17	110	23.21	9.19	9.38	13.54	6.79	4.64	3.44	66	174	240	
	4	1	14	122	17.03	7.87	7.84	13.87	7.01	4.81	3.61	88	227	312	
		5	14	122	23.66	9.79	9.93	13.87	7.01	4.81	3.61	88	227	312	
		1	25	80	16.30	6.92	6.98	13.05	6.46	4.38	3.18	22	59	83	
	10	2	5	25	80	22.39	7.73	8.21	13.05	6.46	4.38	3.18	22	59	83
			1	21	96	16.66	7.31	7.33	13.25	6.59	4.49	3.29	44	118	164
			5	21	96	22.97	8.60	8.89	13.25	6.59	4.49	3.29	44	118	164
		3	1	17	110	17.01	7.63	7.62	13.54	6.79	4.64	3.44	66	174	240
			5	17	110	23.48	9.27	9.46	13.54	6.79	4.64	3.44	66	174	240
			1	14	122	17.34	7.99	7.96	13.87	7.01	4.81	3.61	88	227	312
4		5	14	122	23.93	9.88	10.02	13.87	7.01	4.81	3.61	88	227	312	
		1	25	80	16.88	7.01	7.12	13.05	6.46	4.38	3.18	22	59	83	
		5	25	80	22.90	7.81	8.31	13.05	6.46	4.38	3.18	22	59	83	
20		2	1	21	96	17.26	7.47	7.52	13.25	6.59	4.49	3.29	44	118	164
			5	21	96	23.50	8.72	9.03	13.25	6.59	4.49	3.29	44	118	164
			1	17	110	17.63	7.82	7.84	13.54	6.79	4.64	3.44	66	174	240
		3	5	17	110	24.02	9.41	9.63	13.54	6.79	4.64	3.44	66	174	240
			1	14	122	17.96	8.22	8.21	13.87	7.01	4.81	3.61	88	227	312
			5	14	122	24.48	10.05	10.21	13.87	7.01	4.81	3.61	88	227	312
	40	2	1	25	80	18.04	7.21	7.41	13.05	6.46	4.38	3.18	22	59	83
			5	25	80	23.92	7.95	8.53	13.05	6.46	4.38	3.18	22	59	83
			1	21	96	18.46	7.79	7.90	13.25	6.59	4.49	3.29	44	118	164
		3	5	21	96	24.56	8.95	9.31	13.25	6.59	4.49	3.29	44	118	164
			1	17	110	18.85	8.21	8.27	13.54	6.79	4.64	3.44	66	174	240
			5	17	110	25.11	9.71	9.96	13.54	6.79	4.64	3.44	66	174	240
		4	1	14	122	19.21	8.68	8.71	13.87	7.01	4.81	3.61	88	227	312
			5	14	122	25.59	10.39	10.58	13.87	7.01	4.81	3.61	88	227	312

260 CHARACTER DATA RECORD 60K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	23	74	16.63	7.36	7.39	14.14	7.00	4.75	3.45	20	55	77	
		5	23	74	22.66	8.19	8.63	14.14	7.00	4.75	3.45	20	55	77	
		1	20	86	16.92	7.70	7.70	14.31	7.11	4.84	3.54	41	109	152	
	3	5	20	86	23.13	9.01	9.28	14.31	7.11	4.84	3.54	41	109	152	
		1	16	102	17.33	8.03	8.00	14.64	7.33	5.01	3.71	61	160	222	
		5	16	102	23.74	9.68	9.87	14.64	7.33	5.01	3.71	61	160	222	
	4	1	13	112	17.66	8.39	8.35	15.02	7.59	5.21	3.91	81	210	288	
		5	13	112	24.19	10.31	10.44	15.02	7.59	5.21	3.91	81	210	288	
		1	23	74	16.92	7.41	7.46	14.14	7.00	4.75	3.45	20	55	77	
	10	2	5	23	74	22.91	8.22	8.69	14.14	7.00	4.75	3.45	20	55	77
			1	20	86	17.22	7.78	7.79	14.31	7.11	4.84	3.54	41	109	152
			5	20	86	23.39	9.07	9.35	14.31	7.11	4.84	3.54	41	109	152
		3	1	16	102	17.63	8.12	8.11	14.64	7.33	5.01	3.71	61	160	222
			5	16	102	24.01	9.76	9.95	14.64	7.33	5.01	3.71	61	160	222
			1	13	112	17.97	8.51	8.48	15.02	7.59	5.21	3.91	81	210	288
4		5	13	112	24.46	10.40	10.53	15.02	7.59	5.21	3.91	81	210	288	
		1	23	74	17.48	7.50	7.60	14.14	7.00	4.75	3.45	20	55	77	
		5	23	74	23.41	8.30	8.80	14.14	7.00	4.75	3.45	20	55	77	
20		2	1	20	86	17.80	7.94	7.98	14.31	7.11	4.84	3.54	41	109	152
			5	20	86	23.91	9.19	9.50	14.31	7.11	4.84	3.54	41	109	152
			1	16	102	18.24	8.32	8.32	14.64	7.33	5.01	3.71	61	160	222
		3	5	16	102	24.54	9.90	10.11	14.64	7.33	5.01	3.71	61	160	222
			1	13	112	18.58	8.74	8.73	15.02	7.59	5.21	3.91	81	210	288
			5	13	112	25.00	10.57	10.72	15.02	7.59	5.21	3.91	81	210	288
	40	2	1	23	74	18.62	7.69	7.89	14.14	7.00	4.75	3.45	20	55	77
			5	23	74	24.42	8.44	9.02	14.14	7.00	4.75	3.45	20	55	77
			1	20	86	18.97	8.26	8.36	14.31	7.11	4.84	3.54	41	109	152
		3	5	20	86	24.94	9.42	9.78	14.31	7.11	4.84	3.54	41	109	152
			1	16	102	19.44	8.70	8.75	14.64	7.33	5.01	3.71	61	160	222
			5	16	102	25.62	10.20	10.44	14.64	7.33	5.01	3.71	61	160	222
		4	1	13	112	19.81	9.20	9.22	15.02	7.59	5.21	3.91	81	210	288
			5	13	112	26.09	10.91	11.09	15.02	7.59	5.21	3.91	81	210	288

280 CHARACTER DATA RECORD 60K 1410

CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD					TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	21	70	17.29	7.86	7.88	15.25	7.55	5.13	3.73	19	51	71
		5	21	70	23.24	8.68	9.13	15.25	7.55	5.13	3.73	19	51	71
	3	1	18	82	17.61	8.22	8.21	15.46	7.69	5.23	3.83	38	101	140
		5	18	82	23.76	9.53	9.80	15.46	7.69	5.23	3.83	38	101	140
	4	1	15	94	17.95	8.53	8.50	15.75	7.89	5.39	3.99	57	149	207
5		15	94	24.26	10.18	10.36	15.75	7.89	5.39	3.99	57	149	207	
5	1	12	106	18.35	8.92	8.88	16.19	8.18	5.61	4.21	75	195	267	
	5	12	106	24.81	10.85	10.97	16.19	8.18	5.61	4.21	75	195	267	
10	2	1	21	70	17.57	7.90	7.96	15.25	7.55	5.13	3.73	19	51	71
		5	21	70	23.49	8.72	9.18	15.25	7.55	5.13	3.73	19	51	71
	3	1	18	82	17.90	8.30	8.31	15.46	7.69	5.23	3.83	38	101	140
		5	18	82	24.02	9.59	9.87	15.46	7.69	5.23	3.83	38	101	140
	4	1	15	94	18.25	8.62	8.60	15.75	7.89	5.39	3.99	57	149	207
5		15	94	24.53	10.26	10.44	15.75	7.89	5.39	3.99	57	149	207	
5	1	12	106	18.65	9.04	9.01	16.19	8.18	5.61	4.21	75	195	267	
	5	12	106	25.08	10.93	11.06	16.19	8.18	5.61	4.21	75	195	267	
20	2	1	21	70	18.13	8.00	8.10	15.25	7.55	5.13	3.73	19	51	71
		5	21	70	23.99	8.79	9.29	15.25	7.55	5.13	3.73	19	51	71
	3	1	18	82	18.48	8.46	8.50	15.46	7.69	5.23	3.83	38	101	140
		5	18	82	24.53	9.71	10.01	15.46	7.69	5.23	3.83	38	101	140
	4	1	15	94	18.84	8.81	8.82	15.75	7.89	5.39	3.99	57	149	207
5		15	94	25.06	10.40	10.61	15.75	7.89	5.39	3.99	57	149	207	
5	1	12	106	19.26	9.27	9.25	16.19	8.18	5.61	4.21	75	195	267	
	5	12	106	25.62	11.10	11.25	16.19	8.18	5.61	4.21	75	195	267	
40	2	1	21	70	19.26	8.19	8.38	15.25	7.55	5.13	3.73	19	51	71
		5	21	70	24.99	8.94	9.51	15.25	7.55	5.13	3.73	19	51	71
	3	1	18	82	19.64	8.78	8.88	15.46	7.69	5.23	3.83	38	101	140
		5	18	82	25.56	9.94	10.30	15.46	7.69	5.23	3.83	38	101	140
	4	1	15	94	20.03	9.20	9.25	15.75	7.89	5.39	3.99	57	149	207
5		15	94	26.11	10.70	10.94	15.75	7.89	5.39	3.99	57	149	207	
5	1	12	106	20.48	9.73	9.75	16.19	8.18	5.61	4.21	75	195	267	
	5	12	106	26.70	11.45	11.62	16.19	8.18	5.61	4.21	75	195	267	

300 CHARACTER DATA RECORD 60K 1410

CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD					TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	20	64	17.87	8.33	8.35	16.31	8.07	5.48	3.98	17	47	66
		5	20	64	23.72	9.16	9.59	16.31	8.07	5.48	3.98	17	47	66
	3	1	17	76	18.22	8.71	8.69	16.54	8.23	5.60	4.10	35	94	131
		5	17	76	24.28	10.02	10.28	16.54	8.23	5.60	4.10	35	94	131
	4	1	14	88	18.60	9.03	9.00	16.87	8.45	5.77	4.27	53	139	193
5		14	88	24.84	10.69	10.87	16.87	8.45	5.77	4.27	53	139	193	
5	1	11	100	19.05	9.48	9.43	17.39	8.79	6.04	4.54	70	181	249	
	5	11	100	25.44	11.40	11.52	17.39	8.79	6.04	4.54	70	181	249	
10	2	1	20	64	18.15	8.38	8.42	16.31	8.07	5.48	3.98	17	47	66
		5	20	64	23.97	9.19	9.65	16.31	8.07	5.48	3.98	17	47	66
	3	1	17	76	18.51	8.79	8.79	16.54	8.23	5.60	4.10	35	94	131
		5	17	76	24.54	10.08	10.35	16.54	8.23	5.60	4.10	35	94	131
	4	1	14	88	18.89	9.13	9.11	16.87	8.45	5.77	4.27	53	139	193
5		14	88	25.10	10.76	10.95	16.87	8.45	5.77	4.27	53	139	193	
5	1	11	100	19.35	9.59	9.55	17.39	8.79	6.04	4.54	70	181	249	
	5	11	100	25.71	11.48	11.61	17.39	8.79	6.04	4.54	70	181	249	
20	2	1	20	64	18.70	8.47	8.56	16.31	8.07	5.48	3.98	17	47	66
		5	20	64	24.46	9.27	9.76	16.31	8.07	5.48	3.98	17	47	66
	3	1	17	76	19.08	8.95	8.98	16.54	8.23	5.60	4.10	35	94	131
		5	17	76	25.04	10.19	10.49	16.54	8.23	5.60	4.10	35	94	131
	4	1	14	88	19.48	9.32	9.32	16.87	8.45	5.77	4.27	53	139	193
5		14	88	25.62	10.91	11.11	16.87	8.45	5.77	4.27	53	139	193	
5	1	11	100	19.96	9.82	9.80	17.39	8.79	6.04	4.54	70	181	249	
	5	11	100	26.24	11.65	11.80	17.39	8.79	6.04	4.54	70	181	249	
40	2	1	20	64	19.81	8.66	8.85	16.31	8.07	5.48	3.98	17	47	66
		5	20	64	25.43	9.41	9.98	16.31	8.07	5.48	3.98	17	47	66
	3	1	17	76	20.23	9.27	9.36	16.54	8.23	5.60	4.10	35	94	131
		5	17	76	26.05	10.43	10.78	16.54	8.23	5.60	4.10	35	94	131
	4	1	14	88	20.66	9.71	9.75	16.87	8.45	5.77	4.27	53	139	193
5		14	88	26.66	11.20	11.44	16.87	8.45	5.77	4.27	53	139	193	
5	1	11	100	21.16	10.28	10.30	17.39	8.79	6.04	4.54	70	181	249	
	5	11	100	27.31	12.00	12.17	17.39	8.79	6.04	4.54	70	181	249	

400 CHARACTER DATA RECORD 60K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	15	48	21.08	10.76	10.76	21.75	10.77	7.31	5.31	13	35	50	
		5	15	48	26.58	11.59	12.00	21.75	10.77	7.31	5.31	13	35	50	
		3	1	13	56	21.43	11.16	11.12	22.02	10.95	7.45	5.45	26	71	98
	4	5	13	56	27.12	12.47	12.71	22.02	10.95	7.45	5.45	26	71	98	
		1	10	68	22.02	11.65	11.59	22.63	11.35	7.76	5.76	39	104	144	
		5	10	68	27.94	13.31	13.46	22.63	11.35	7.76	5.76	39	104	144	
	5	1	8	76	22.53	12.18	12.11	23.28	11.79	8.10	6.10	52	135	185	
		5	8	76	28.59	14.10	14.19	23.28	11.79	8.10	6.10	52	135	185	
		10	2	1	15	48	21.34	10.81	10.83	21.75	10.77	7.31	5.31	13	35
	5			15	48	26.81	11.62	12.05	21.75	10.77	7.31	5.31	13	35	50
	3			1	13	56	21.70	11.24	11.21	22.02	10.95	7.45	5.45	26	71
	4		5	13	56	27.36	12.53	12.78	22.02	10.95	7.45	5.45	26	71	98
			1	10	68	22.30	11.75	11.70	22.63	11.35	7.76	5.76	39	104	144
			5	10	68	28.19	13.38	13.54	22.63	11.35	7.76	5.76	39	104	144
	5		1	8	76	22.81	12.29	12.23	23.28	11.79	8.10	6.10	52	135	185
5			8	76	28.84	14.18	14.29	23.28	11.79	8.10	6.10	52	135	185	
20			2	1	15	48	21.86	10.90	10.97	21.75	10.77	7.31	5.31	13	35
	5			15	48	27.27	11.70	12.16	21.75	10.77	7.31	5.31	13	35	50
	3			1	13	56	22.24	11.40	11.41	22.02	10.95	7.45	5.45	26	71
	4		5	13	56	27.83	12.65	12.92	22.02	10.95	7.45	5.45	26	71	98
			1	10	68	22.86	11.94	11.91	22.63	11.35	7.76	5.76	39	104	144
			5	10	68	28.68	13.53	13.70	22.63	11.35	7.76	5.76	39	104	144
	5		1	8	76	23.39	12.52	12.48	23.28	11.79	8.10	6.10	52	135	185
		5	8	76	29.34	14.36	14.47	23.28	11.79	8.10	6.10	52	135	185	
		40	2	1	15	48	22.90	11.10	11.26	21.75	10.77	7.31	5.31	13	35
	5			15	48	28.19	11.84	12.38	21.75	10.77	7.31	5.31	13	35	50
	3			1	13	56	23.31	11.72	11.79	22.02	10.95	7.45	5.45	26	71
	4		5	13	56	28.78	12.88	13.20	22.02	10.95	7.45	5.45	26	71	98
			1	10	68	23.98	12.32	12.34	22.63	11.35	7.76	5.76	39	104	144
			5	10	68	29.67	13.82	14.03	22.63	11.35	7.76	5.76	39	104	144
	5		1	8	76	24.53	12.99	12.97	23.28	11.79	8.10	6.10	52	135	185
5			8	76	30.36	14.70	14.84	23.28	11.79	8.10	6.10	52	135	185	

500 CHARACTER DATA RECORD 60K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	12	38	24.36	13.19	13.16	27.19	13.46	9.13	6.63	10	28	40	
		5	12	38	29.58	14.02	14.40	27.19	13.46	9.13	6.63	10	28	40	
		3	1	10	46	24.85	13.69	13.62	27.63	13.75	9.36	6.86	21	56	78
	4	5	10	46	30.30	15.00	15.21	27.63	13.75	9.36	6.86	21	56	78	
		1	8	54	25.42	14.21	14.13	28.28	14.19	9.70	7.20	31	83	115	
		5	8	54	31.07	15.87	15.99	28.28	14.19	9.70	7.20	31	83	115	
	5	1	7	58	25.77	14.63	14.53	28.75	14.50	9.95	7.45	42	109	150	
		5	7	58	31.50	16.55	16.62	28.75	14.50	9.95	7.45	42	109	150	
		10	2	1	12	38	24.60	13.24	13.23	27.19	13.46	9.13	6.63	10	28
	5			12	38	29.79	14.06	14.46	27.19	13.46	9.13	6.63	10	28	40
	3			1	10	46	25.10	13.77	13.72	27.63	13.75	9.36	6.86	21	56
	4		5	10	46	30.53	15.06	15.28	27.63	13.75	9.36	6.86	21	56	78
			1	8	54	25.69	14.31	14.23	28.28	14.19	9.70	7.20	31	83	115
			5	8	54	31.30	15.94	16.07	28.28	14.19	9.70	7.20	31	83	115
	5		1	7	58	26.04	14.74	14.65	28.75	14.50	9.95	7.45	42	109	150
5			7	58	31.74	16.63	16.71	28.75	14.50	9.95	7.45	42	109	150	
20			2	1	12	38	25.10	13.34	13.38	27.19	13.46	9.13	6.63	10	28
	5			12	38	30.23	14.13	14.57	27.19	13.46	9.13	6.63	10	28	40
	3			1	10	46	25.62	13.93	13.91	27.63	13.75	9.36	6.86	21	56
	4		5	10	46	30.98	15.18	15.42	27.63	13.75	9.36	6.86	21	56	78
			1	8	54	26.22	14.50	14.45	28.28	14.19	9.70	7.20	31	83	115
			5	8	54	31.77	16.09	16.24	28.28	14.19	9.70	7.20	31	83	115
	5		1	7	58	26.59	14.97	14.90	28.75	14.50	9.95	7.45	42	109	150
		5	7	58	32.22	16.81	16.90	28.75	14.50	9.95	7.45	42	109	150	
		40	2	1	12	38	26.09	13.53	13.66	27.19	13.46	9.13	6.63	10	28
	5			12	38	31.10	14.28	14.79	27.19	13.46	9.13	6.63	10	28	40
	3			1	10	46	26.66	14.25	14.29	27.63	13.75	9.36	6.86	21	56
	4		5	10	46	31.89	15.41	15.71	27.63	13.75	9.36	6.86	21	56	78
			1	8	54	27.29	14.88	14.88	28.28	14.19	9.70	7.20	31	83	115
			5	8	54	32.72	16.38	16.57	28.28	14.19	9.70	7.20	31	83	115
	5		1	7	58	27.67	15.44	15.40	28.75	14.50	9.95	7.45	42	109	150
5			7	58	33.18	17.15	17.27	28.75	14.50	9.95	7.45	42	109	150	



750 CHARACTER DATA RECORD 60K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					MILLISECONDS/RECORD PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	8	26	32.82	19.27	19.17	40.78	20.19	13.70	9.95	7	19	26	
		5	8	26	37.58	20.10	20.42	40.78	20.19	13.70	9.95	7	19	26	
	3	1	7	30	33.26	19.79	19.66	41.25	20.50	13.95	10.20	14	37	52	
		5	7	30	38.20	21.10	21.24	41.25	20.50	13.95	10.20	14	37	52	
	4	1	5	38	34.40	20.80	20.66	42.76	21.51	14.73	10.98	21	55	76	
		5	5	38	39.62	22.46	22.52	42.76	21.51	14.73	10.98	21	55	76	
	5	1	4	42	35.26	21.72	21.56	44.07	22.38	15.41	11.66	28	71	98	
		5	4	42	40.60	23.64	23.65	44.07	22.38	15.41	11.66	28	71	98	
	10	2	1	8	26	33.04	19.32	19.25	40.78	20.19	13.70	9.95	7	19	26
			5	8	26	37.78	20.13	20.47	40.78	20.19	13.70	9.95	7	19	26
3		1	7	30	33.50	19.87	19.75	41.25	20.50	13.95	10.20	14	37	52	
		5	7	30	38.40	21.16	21.32	41.25	20.50	13.95	10.20	14	37	52	
4		1	5	38	34.65	20.90	20.76	42.76	21.51	14.73	10.98	21	55	76	
		5	5	38	39.84	22.54	22.61	42.76	21.51	14.73	10.98	21	55	76	
5		1	4	42	35.51	21.84	21.68	44.07	22.38	15.41	11.66	28	71	98	
		5	4	42	40.83	23.73	23.74	44.07	22.38	15.41	11.66	28	71	98	
20		2	1	8	26	33.50	19.41	19.39	40.78	20.19	13.70	9.95	7	19	26
			5	8	26	38.18	20.21	20.58	40.78	20.19	13.70	9.95	7	19	26
	3	1	7	30	33.97	20.03	19.94	41.25	20.50	13.95	10.20	14	37	52	
		5	7	30	38.82	21.27	21.46	41.25	20.50	13.95	10.20	14	37	52	
	4	1	5	38	35.15	21.09	20.98	42.76	21.51	14.73	10.98	21	55	76	
		5	5	38	40.28	22.68	22.77	42.76	21.51	14.73	10.98	21	55	76	
	5	1	4	42	36.02	22.07	21.93	44.07	22.38	15.41	11.66	28	71	98	
		5	4	42	41.27	23.90	23.93	44.07	22.38	15.41	11.66	28	71	98	
	40	2	1	8	26	34.41	19.61	19.68	40.78	20.19	13.70	9.95	7	19	26
			5	8	26	38.98	20.35	20.80	40.78	20.19	13.70	9.95	7	19	26
3		1	7	30	34.91	20.35	20.32	41.25	20.50	13.95	10.20	14	37	52	
		5	7	30	39.64	21.51	21.74	41.25	20.50	13.95	10.20	14	37	52	
4		1	5	38	36.14	21.48	21.41	42.76	21.51	14.73	10.98	21	55	76	
		5	5	38	41.15	22.98	23.10	42.76	21.51	14.73	10.98	21	55	76	
5		1	4	42	37.03	22.53	22.43	44.07	22.38	15.41	11.66	28	71	98	
		5	4	42	42.16	24.24	24.30	44.07	22.38	15.41	11.66	28	71	98	

1000 CHARACTER DATA RECORD 60K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					MILLISECONDS/RECORD PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	6	20	41.43	25.35	25.19	54.38	26.92	18.27	13.27	5	14	20	
		5	6	20	45.88	26.18	26.43	54.38	26.92	18.27	13.27	5	14	20	
	3	1	5	22	42.04	26.11	25.91	55.26	27.51	18.73	13.73	10	28	39	
		5	5	22	46.60	27.42	27.50	55.26	27.51	18.73	13.73	10	28	39	
	4	1	4	26	42.99	27.01	26.80	56.57	28.38	19.41	14.41	15	41	57	
		5	4	26	47.75	28.67	28.67	56.57	28.38	19.41	14.41	15	41	57	
	5	1	3	30	44.38	28.45	28.22	58.76	29.85	20.55	15.55	21	53	73	
		5	3	30	49.32	30.37	30.31	58.76	29.85	20.55	15.55	21	53	73	
	10	2	1	6	20	41.65	25.40	25.26	54.38	26.92	18.27	13.27	5	14	20
			5	6	20	46.07	26.21	26.49	54.38	26.92	18.27	13.27	5	14	20
3		1	5	22	42.26	26.19	26.01	55.26	27.51	18.73	13.73	10	28	39	
		5	5	22	46.79	27.48	27.57	55.26	27.51	18.73	13.73	10	28	39	
4		1	4	26	43.21	27.11	26.91	56.57	28.38	19.41	14.41	15	41	57	
		5	4	26	47.95	28.74	28.75	56.57	28.38	19.41	14.41	15	41	57	
5		1	3	30	44.62	28.56	28.35	58.76	29.85	20.55	15.55	21	53	73	
		5	3	30	49.53	30.46	30.40	58.76	29.85	20.55	15.55	21	53	73	
20		2	1	6	20	42.07	25.49	25.40	54.38	26.92	18.27	13.27	5	14	20
			5	6	20	46.44	26.29	26.60	54.38	26.92	18.27	13.27	5	14	20
	3	1	5	22	42.70	26.35	26.20	55.26	27.51	18.73	13.73	10	28	39	
		5	5	22	47.18	27.59	27.71	55.26	27.51	18.73	13.73	10	28	39	
	4	1	4	26	43.67	27.30	27.12	56.57	28.38	19.41	14.41	15	41	57	
		5	4	26	48.35	28.89	28.91	56.57	28.38	19.41	14.41	15	41	57	
	5	1	3	30	45.09	28.80	28.59	58.76	29.85	20.55	15.55	21	53	73	
		5	3	30	49.94	30.63	30.59	58.76	29.85	20.55	15.55	21	53	73	
	40	2	1	6	20	42.92	25.68	25.69	54.38	26.92	18.27	13.27	5	14	20
			5	6	20	47.18	26.43	26.82	54.38	26.92	18.27	13.27	5	14	20
3		1	5	22	43.57	26.67	26.58	55.26	27.51	18.73	13.73	10	28	39	
		5	5	22	47.94	27.83	28.00	55.26	27.51	18.73	13.73	10	28	39	
4		1	4	26	44.57	27.69	27.55	56.57	28.38	19.41	14.41	15	41	57	
		5	4	26	49.14	29.18	29.24	56.57	28.38	19.41	14.41	15	41	57	
5		1	3	30	46.03	29.26	29.09	58.76	29.85	20.55	15.55	21	53	73	
		5	3	30	50.76	30.97	30.96	58.76	29.85	20.55	15.55	21	53	73	

1500 CHARACTER DATA RECORD 60K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	4	12	58.69	37.51	37.22	81.57	40.38	27.41	19.91	3	9	13	
		5	4	12	62.52	38.34	38.46	81.57	40.38	27.41	19.91	3	9	13	
		1	3	16	60.27	39.04	38.72	83.76	41.85	28.55	21.05	7	18	25	
	3	5	3	16	64.45	40.35	40.30	83.76	41.85	28.55	21.05	7	18	25	
		1	2	20	62.98	41.76	41.42	88.15	44.77	30.82	23.32	10	26	36	
		5	2	20	67.43	43.42	43.28	88.15	44.77	30.82	23.32	10	26	36	
	4	1	2	20	62.98	41.90	41.55	88.15	44.77	30.82	23.32	14	35	49	
		5	2	20	62.98	41.90	41.55	88.15	44.77	30.82	23.32	14	35	49	
		1	2	20	67.43	43.82	43.63	88.15	44.77	30.82	23.32	14	35	49	
	10	2	1	4	12	58.88	37.56	37.29	81.57	40.38	27.41	19.91	3	9	13
			5	4	12	62.68	38.38	38.51	81.57	40.38	27.41	19.91	3	9	13
			1	3	16	60.47	39.12	38.81	83.76	41.85	28.55	21.05	7	18	25
		3	5	3	16	64.62	40.41	40.37	83.76	41.85	28.55	21.05	7	18	25
			1	2	20	63.20	41.86	41.53	88.15	44.77	30.82	23.32	10	26	36
			5	2	20	67.62	43.49	43.37	88.15	44.77	30.82	23.32	10	26	36
4		1	2	20	63.20	42.02	41.67	88.15	44.77	30.82	23.32	14	35	49	
		5	2	20	63.20	42.02	41.67	88.15	44.77	30.82	23.32	14	35	49	
		1	2	20	67.62	43.91	43.73	88.15	44.77	30.82	23.32	14	35	49	
20		2	1	4	12	59.25	37.66	37.43	81.57	40.38	27.41	19.91	3	9	13
			5	4	12	63.00	38.45	38.62	81.57	40.38	27.41	19.91	3	9	13
			1	3	16	60.87	39.28	39.00	83.76	41.85	28.55	21.05	7	18	25
		3	5	3	16	64.97	40.53	40.52	83.76	41.85	28.55	21.05	7	18	25
			1	2	20	63.62	42.05	41.74	88.15	44.77	30.82	23.32	10	26	36
			5	2	20	67.99	43.64	43.53	88.15	44.77	30.82	23.32	10	26	36
	4	1	2	20	63.62	42.25	41.92	88.15	44.77	30.82	23.32	14	35	49	
		5	2	20	63.62	42.25	41.92	88.15	44.77	30.82	23.32	14	35	49	
		1	2	20	67.99	44.08	43.91	88.15	44.77	30.82	23.32	14	35	49	
	40	2	1	4	12	59.98	37.85	37.72	81.57	40.38	27.41	19.91	3	9	13
			5	4	12	63.65	38.60	38.84	81.57	40.38	27.41	19.91	3	9	13
			1	3	16	61.67	39.60	39.38	83.76	41.85	28.55	21.05	7	18	25
		3	5	3	16	65.67	40.76	40.80	83.76	41.85	28.55	21.05	7	18	25
			1	2	20	64.47	42.43	42.17	88.15	44.77	30.82	23.32	10	26	36
			5	2	20	68.73	43.93	43.86	88.15	44.77	30.82	23.32	10	26	36
4		1	2	20	64.47	42.71	42.41	88.15	44.77	30.82	23.32	14	35	49	
		5	2	20	64.47	42.71	42.41	88.15	44.77	30.82	23.32	14	35	49	
		1	2	20	68.73	44.42	44.28	88.15	44.77	30.82	23.32	14	35	49	

2000 CHARACTER DATA RECORD 60K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	3	10	76.37	49.66	49.24	108.76	53.85	36.55	26.55	2	7	10	
		5	3	10	79.98	50.49	50.49	108.76	53.85	36.55	26.55	2	7	10	
		1	2	14	79.22	52.48	52.04	113.15	56.77	38.82	28.82	5	13	19	
	3	5	2	14	83.24	53.79	53.63	113.15	56.77	38.82	28.82	5	13	19	
		1	2	14	79.22	52.61	52.15	113.15	56.77	38.82	28.82	7	20	28	
		5	2	14	83.24	54.27	54.02	113.15	56.77	38.82	28.82	7	20	28	
	4	1	1	18	86.82	60.54	60.05	126.30	65.55	45.65	35.65	10	25	33	
		5	1	18	86.82	60.54	60.05	126.30	65.55	45.65	35.65	10	25	33	
		1	1	18	91.14	62.47	62.14	126.30	65.55	45.65	35.65	10	25	33	
	10	2	1	3	10	76.55	49.71	49.32	108.76	53.85	36.55	26.55	2	7	10
			5	3	10	80.13	50.53	50.54	108.76	53.85	36.55	26.55	2	7	10
			1	2	14	79.42	52.56	52.13	113.15	56.77	38.82	28.82	5	13	19
		3	5	2	14	83.41	53.85	53.70	113.15	56.77	38.82	28.82	5	13	19
			1	2	14	79.42	52.71	52.26	113.15	56.77	38.82	28.82	7	20	28
			5	2	14	83.41	54.34	54.10	113.15	56.77	38.82	28.82	7	20	28
4		1	1	18	87.03	60.66	60.17	126.30	65.55	45.65	35.65	10	25	33	
		5	1	18	87.03	60.66	60.17	126.30	65.55	45.65	35.65	10	25	33	
		1	1	18	91.32	62.55	62.23	126.30	65.55	45.65	35.65	10	25	33	
20		2	1	3	10	76.90	49.81	49.46	108.76	53.85	36.55	26.55	2	7	10
			5	3	10	80.44	50.60	50.65	108.76	53.85	36.55	26.55	2	7	10
			1	2	14	79.80	52.72	52.33	113.15	56.77	38.82	28.82	5	13	19
		3	5	2	14	83.74	53.97	53.84	113.15	56.77	38.82	28.82	5	13	19
			1	2	14	79.80	52.90	52.47	113.15	56.77	38.82	28.82	7	20	28
			5	2	14	83.74	54.49	54.26	113.15	56.77	38.82	28.82	7	20	28
	4	1	1	18	87.45	60.89	60.42	126.30	65.55	45.65	35.65	10	25	33	
		5	1	18	87.45	60.89	60.42	126.30	65.55	45.65	35.65	10	25	33	
		1	1	18	91.69	62.72	62.42	126.30	65.55	45.65	35.65	10	25	33	
	40	2	1	3	10	77.59	50.00	49.74	108.76	53.85	36.55	26.55	2	7	10
			5	3	10	81.04	50.75	50.87	108.76	53.85	36.55	26.55	2	7	10
			1	2	14	80.57	53.04	52.71	113.15	56.77	38.82	28.82	5	13	19
		3	5	2	14	84.42	54.20	54.12	113.15	56.77	38.82	28.82	5	13	19
			1	2	14	80.57	53.29	52.90	113.15	56.77	38.82	28.82	7	20	28
			5	2	14	84.42	54.78	54.59	113.15	56.77	38.82	28.82	7	20	28
4		1	1	18	88.27	61.35	60.92	126.30	65.55	45.65	35.65	10	25	33	
		5	1	18	88.27	61.35	60.92	126.30	65.55	45.65	35.65	10	25	33	
		1	1	18	92.41	63.07	62.79	126.30	65.55	45.65	35.65	10	25	33	

20 CHARACTER DATA RECORD 80K 1410

CW LNG	MRG ORD	NO. CF	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF RECORDS IN THOUSANDS					
			B	G	MILLISECONDS/RECORD	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	300	1340	11.84	1.52	1.61	1.08	.53	.36	.26	269	717	1003	
		5	300	1340	21.37	2.35	2.86	1.08	.53	.36	.26	269	717	1003	
	3	1	300	1340	11.84	1.76	1.82	1.08	.53	.36	.26	538	1434	2007	
		5	300	1340	21.37	3.07	3.41	1.08	.53	.36	.26	538	1434	2007	
	4	1	300	1340	11.84	1.89	1.93	1.08	.53	.36	.26	807	2152	3010	
		5	300	1340	21.37	3.55	3.80	1.08	.53	.36	.26	807	2152	3010	
	5	1	258	1452	11.96	2.04	2.07	1.10	.54	.37	.27	1072	2839	3956	
		5	258	1452	21.58	3.96	4.15	1.10	.54	.37	.27	1072	2839	3956	
	10	2	1	300	1340	12.29	1.57	1.69	1.08	.53	.36	.26	269	717	1003
			5	300	1340	21.76	2.38	2.91	1.08	.53	.36	.26	269	717	1003
3		1	300	1340	12.29	1.84	1.91	1.08	.53	.36	.26	538	1434	2007	
		5	300	1340	21.76	3.13	3.48	1.08	.53	.36	.26	538	1434	2007	
4		1	300	1340	12.29	1.99	2.04	1.08	.53	.36	.26	807	2152	3010	
		5	300	1340	21.76	3.63	3.88	1.08	.53	.36	.26	807	2152	3010	
5		1	258	1452	12.41	2.16	2.19	1.10	.54	.37	.27	1072	2839	3956	
		5	258	1452	21.98	4.05	4.25	1.10	.54	.37	.27	1072	2839	3956	

30 CHARACTER DATA RECORD 80K 1410

CW LNG	MRG ORD	NO. CF	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF RECORDS IN THOUSANDS					
			B	G	MILLISECONDS/RECORD	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	200	1004	11.82	1.76	1.85	1.63	.80	.54	.39	179	478	669	
		5	200	1004	21.00	2.59	3.10	1.63	.80	.54	.39	179	478	669	
	3	1	200	1004	11.82	2.01	2.06	1.63	.80	.54	.39	359	956	1338	
		5	200	1004	21.00	3.32	3.65	1.63	.80	.54	.39	359	956	1338	
	4	1	200	1004	11.82	2.14	2.17	1.63	.80	.54	.39	538	1434	2007	
		5	200	1004	21.00	3.79	4.04	1.63	.80	.54	.39	538	1434	2007	
	5	1	172	1088	11.94	2.29	2.31	1.65	.82	.55	.40	715	1893	2637	
		5	172	1088	21.21	4.21	4.40	1.65	.82	.55	.40	715	1893	2637	
	10	2	1	200	1004	12.25	1.81	1.93	1.63	.80	.54	.39	179	478	669
			5	200	1004	21.38	2.63	3.15	1.63	.80	.54	.39	179	478	669
3		1	200	1004	12.25	2.09	2.16	1.63	.80	.54	.39	359	956	1338	
		5	200	1004	21.38	3.37	3.72	1.63	.80	.54	.39	359	956	1338	
4		1	200	1004	12.25	2.23	2.28	1.63	.80	.54	.39	538	1434	2007	
		5	200	1004	21.38	3.87	4.12	1.63	.80	.54	.39	538	1434	2007	
5		1	172	1088	12.37	2.40	2.44	1.65	.82	.55	.40	715	1893	2637	
		5	172	1088	21.60	4.30	4.49	1.65	.82	.55	.40	715	1893	2637	
20		2	1	200	1004	13.11	1.91	2.07	1.63	.80	.54	.39	179	478	669
			5	200	1004	22.14	2.70	3.26	1.63	.80	.54	.39	179	478	669
	3	1	200	1004	13.11	2.25	2.35	1.63	.80	.54	.39	359	956	1338	
		5	200	1004	22.14	3.49	3.86	1.63	.80	.54	.39	359	956	1338	
	4	1	200	1004	13.11	2.43	2.49	1.63	.80	.54	.39	538	1434	2007	
		5	200	1004	22.14	4.01	4.28	1.63	.80	.54	.39	538	1434	2007	
	5	1	172	1088	13.24	2.64	2.68	1.65	.82	.55	.40	715	1893	2637	
		5	172	1088	22.37	4.47	4.68	1.65	.82	.55	.40	715	1893	2637	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF RECORDS IN THOUSANDS					
			B	G	MILLISECONDS/RECORD	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	150	804	11.89	2.00	2.10	2.17	1.07	.73	.53	134	358	501	
		5	150	804	20.79	2.83	3.34	2.17	1.07	.73	.53	134	358	501	
	3	1	150	804	11.89	2.25	2.30	2.17	1.07	.73	.53	269	717	1003	
		5	150	804	20.79	3.56	3.89	2.17	1.07	.73	.53	269	717	1003	
	4	1	150	804	11.89	2.38	2.41	2.17	1.07	.73	.53	403	1076	1505	
		5	150	804	20.79	4.04	4.28	2.17	1.07	.73	.53	403	1076	1505	
	5	1	129	870	12.01	2.54	2.56	2.20	1.09	.74	.54	536	1419	1978	
		5	129	870	21.01	4.46	4.64	2.20	1.09	.74	.54	536	1419	1978	
	10	2	1	150	804	12.30	2.05	2.17	2.17	1.07	.73	.53	134	358	501
			5	150	804	21.16	2.87	3.39	2.17	1.07	.73	.53	134	358	501
3		1	150	804	12.30	2.33	2.40	2.17	1.07	.73	.53	269	717	1003	
		5	150	804	21.16	3.62	3.96	2.17	1.07	.73	.53	269	717	1003	
4		1	150	804	12.30	2.48	2.52	2.17	1.07	.73	.53	403	1076	1505	
		5	150	804	21.16	4.11	4.36	2.17	1.07	.73	.53	403	1076	1505	
5		1	129	870	12.43	2.65	2.68	2.20	1.09	.74	.54	536	1419	1978	
		5	129	870	21.38	4.54	4.74	2.20	1.09	.74	.54	536	1419	1978	
20		2	1	150	804	13.13	2.15	2.31	2.17	1.07	.73	.53	134	358	501
			5	150	804	21.91	2.94	3.50	2.17	1.07	.73	.53	134	358	501
	3	1	150	804	13.13	2.49	2.59	2.17	1.07	.73	.53	269	717	1003	
		5	150	804	21.91	3.74	4.10	2.17	1.07	.73	.53	269	717	1003	
	4	1	150	804	13.13	2.67	2.73	2.17	1.07	.73	.53	403	1076	1505	
		5	150	804	21.91	4.26	4.52	2.17	1.07	.73	.53	403	1076	1505	
	5	1	129	870	13.27	2.88	2.93	2.20	1.09	.74	.54	536	1419	1978	
		5	129	870	22.13	4.71	4.92	2.20	1.09	.74	.54	536	1419	1978	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	120	670	12.00	2.25	2.34	2.71	1.34	.91	.66	107	286	401	
		5	120	670	20.69	3.08	3.58	2.71	1.34	.91	.66	107	286	401	
		1	120	670	12.00	2.49	2.54	2.71	1.34	.91	.66	215	573	802	
	3	1	120	670	12.00	2.49	2.54	2.71	1.34	.91	.66	215	573	802	
		5	120	670	20.69	3.80	4.13	2.71	1.34	.91	.66	323	860	1204	
		1	120	670	12.00	2.62	2.65	2.71	1.34	.91	.66	323	860	1204	
	4	1	120	670	12.00	2.62	2.65	2.71	1.34	.91	.66	323	860	1204	
		5	120	670	20.69	4.28	4.52	2.71	1.34	.91	.66	429	1135	1582	
		1	103	726	12.13	2.78	2.80	2.75	1.37	.93	.68	429	1135	1582	
	5	1	103	726	12.13	2.78	2.80	2.75	1.37	.93	.68	429	1135	1582	
		5	103	726	20.91	4.70	4.89	2.75	1.37	.93	.68	429	1135	1582	
		1	120	670	12.41	2.30	2.41	2.71	1.34	.91	.66	107	286	401	
	10	2	1	120	670	12.41	2.30	2.41	2.71	1.34	.91	.66	107	286	401
			5	120	670	21.05	3.11	3.63	2.71	1.34	.91	.66	107	286	401
			1	120	670	12.41	2.57	2.64	2.71	1.34	.91	.66	215	573	802
3		1	120	670	12.41	2.57	2.64	2.71	1.34	.91	.66	215	573	802	
		5	120	670	21.05	3.86	4.20	2.71	1.34	.91	.66	215	573	802	
		1	120	670	12.41	2.72	2.76	2.71	1.34	.91	.66	323	860	1204	
4		1	120	670	12.41	2.72	2.76	2.71	1.34	.91	.66	323	860	1204	
		5	120	670	21.05	4.35	4.60	2.71	1.34	.91	.66	323	860	1204	
		1	103	726	12.54	2.90	2.92	2.75	1.37	.93	.68	429	1135	1582	
5		1	103	726	12.54	2.90	2.92	2.75	1.37	.93	.68	429	1135	1582	
		5	103	726	21.28	4.79	4.98	2.75	1.37	.93	.68	429	1135	1582	
		1	120	670	13.22	2.39	2.55	2.71	1.34	.91	.66	107	286	401	
20		2	1	120	670	13.22	2.39	2.55	2.71	1.34	.91	.66	107	286	401
			5	120	670	21.78	3.19	3.74	2.71	1.34	.91	.66	107	286	401
			1	120	670	13.22	2.73	2.83	2.71	1.34	.91	.66	215	573	802
	3	1	120	670	13.22	2.73	2.83	2.71	1.34	.91	.66	215	573	802	
		5	120	670	21.78	3.98	4.34	2.71	1.34	.91	.66	215	573	802	
		1	120	670	13.22	2.91	2.97	2.71	1.34	.91	.66	323	860	1204	
	4	1	120	670	13.22	2.91	2.97	2.71	1.34	.91	.66	323	860	1204	
		5	120	670	21.78	4.50	4.77	2.71	1.34	.91	.66	323	860	1204	
		1	103	726	13.36	3.13	3.17	2.75	1.37	.93	.68	429	1135	1582	
	5	1	103	726	13.36	3.13	3.17	2.75	1.37	.93	.68	429	1135	1582	
		5	103	726	22.01	4.96	5.17	2.75	1.37	.93	.68	429	1135	1582	
		1	120	670	14.85	2.58	2.84	2.71	1.34	.91	.66	107	286	401	
	40	2	1	120	670	14.85	2.58	2.84	2.71	1.34	.91	.66	107	286	401
			5	120	670	23.22	3.33	3.96	2.71	1.34	.91	.66	107	286	401
			1	120	670	14.85	3.05	3.21	2.71	1.34	.91	.66	215	573	802
3		1	120	670	14.85	3.05	3.21	2.71	1.34	.91	.66	215	573	802	
		5	120	670	23.22	4.21	4.62	2.71	1.34	.91	.66	215	573	802	
		1	120	670	14.85	3.30	3.40	2.71	1.34	.91	.66	323	860	1204	
4		1	120	670	14.85	3.30	3.40	2.71	1.34	.91	.66	323	860	1204	
		5	120	670	23.22	4.79	5.09	2.71	1.34	.91	.66	323	860	1204	
		1	103	726	15.00	3.59	3.67	2.75	1.37	.93	.68	429	1135	1582	
5		1	103	726	15.00	3.59	3.67	2.75	1.37	.93	.68	429	1135	1582	
		5	103	726	23.47	5.31	5.54	2.75	1.37	.93	.68	429	1135	1582	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	100	574	12.16	2.49	2.58	3.26	1.61	1.09	.79	89	239	334	
		5	100	574	20.66	3.32	3.82	3.26	1.61	1.09	.79	89	239	334	
		1	100	574	12.16	2.73	2.78	3.26	1.61	1.09	.79	179	478	669	
	3	1	100	574	12.16	2.73	2.78	3.26	1.61	1.09	.79	179	478	669	
		5	100	574	20.66	4.04	4.37	3.26	1.61	1.09	.79	179	478	669	
		1	100	574	12.16	2.87	2.89	3.26	1.61	1.09	.79	269	717	1003	
	4	1	100	574	12.16	2.87	2.89	3.26	1.61	1.09	.79	269	717	1003	
		5	100	574	20.66	4.52	4.76	3.26	1.61	1.09	.79	269	717	1003	
		1	86	622	12.29	3.03	3.05	3.30	1.64	1.11	.81	357	946	1318	
	5	1	86	622	12.29	3.03	3.05	3.30	1.64	1.11	.81	357	946	1318	
		5	86	622	20.88	4.95	5.13	3.30	1.64	1.11	.81	357	946	1318	
		1	100	574	12.56	2.54	2.65	3.26	1.61	1.09	.79	89	239	334	
	10	2	1	100	574	12.56	2.54	2.65	3.26	1.61	1.09	.79	89	239	334
			5	100	574	21.01	3.36	3.88	3.26	1.61	1.09	.79	89	239	334
			1	100	574	12.56	2.81	2.88	3.26	1.61	1.09	.79	179	478	669
3		1	100	574	12.56	2.81	2.88	3.26	1.61	1.09	.79	179	478	669	
		5	100	574	21.01	4.10	4.44	3.26	1.61	1.09	.79	179	478	669	
		1	100	574	12.56	2.96	3.00	3.26	1.61	1.09	.79	269	717	1003	
4		1	100	574	12.56	2.96	3.00	3.26	1.61	1.09	.79	269	717	1003	
		5	100	574	21.01	4.60	4.84	3.26	1.61	1.09	.79	269	717	1003	
		1	86	622	12.69	3.15	3.17	3.30	1.64	1.11	.81	357	946	1318	
5		1	86	622	12.69	3.15	3.17	3.30	1.64	1.11	.81	357	946	1318	
		5	86	622	21.24	5.04	5.23	3.30	1.64	1.11	.81	357	946	1318	
		1	100	574	13.35	2.63	2.79	3.26	1.61	1.09	.79	89	239	334	
20		2	1	100	574	13.35	2.63	2.79	3.26	1.61	1.09	.79	89	239	334
			5	100	574	21.72	3.43	3.98	3.26	1.61	1.09	.79	89	239	334
			1	100	574	13.35	2.97	3.07	3.26	1.61	1.09	.79	179	478	669
	3	1	100	574	13.35	2.97	3.07	3.26	1.61	1.09	.79	179	478	669	
		5	100	574	21.72	4.22	4.58	3.26	1.61	1.09	.79	179	478	669	
		1	100	574	13.35	3.15	3.22	3.26	1.61	1.09	.79	269	717	1003	
	4	1	100	574	13.35	3.15	3.22	3.26	1.61	1.09	.79	269	717	1003	
		5	100	574	21.72	4.74	5.01	3.26	1.61	1.09	.79	269	717	1003	
		1	86	622	13.49	3.38	3.42	3.30	1.64	1.11	.81	357	946	1318	
	5	1	86	622	13.49	3.38	3.42	3.30	1.64	1.11	.81	357	946	1318	
		5	86	622	21.96	5.21	5.41	3.30	1.64	1.11	.81	357	946	1318	
		1	100	574	14.94	2.83	3.08	3.26	1.61	1.09	.79	89	239	334	
	40	2	1	100	574	14.94	2.83	3.08	3.26	1.61	1.09	.79	89	239	334
			5	100	574	23.14	3.58	4.20	3.26	1.61	1.09	.79	89	239	334
			1	100	574	14.94	3.30	3.45	3.26	1.61	1.09	.79	179	478	669
3		1	100	574	14.94	3.30	3.45	3.26	1.61	1.09	.79	179	478	669	
		5	100	574	23.14	4.46	4.87	3.26	1.61	1.09	.79	179	478	669	
		1	100	574	14.94	3.54	3.64	3.26	1.61	1.09	.79	269	717	1003	
4		1	100	574	14.94	3.54	3.64	3.26	1.61	1.09	.79	269	717	1003	
		5	100	574	23.14	5.04	5.33	3.26	1.61	1.09	.79	269	717	1003	
		1	86	622	15.10	3.84	3.91	3.30	1.64	1.11	.81	357	946	1318	
5		1	86	622	15.10	3.84	3.91	3.30	1.64	1.11	.81	357	946	1318	
		5	86	622	23.39	5.55	5.78	3.30	1.64	1.11	.81	357	946	1318	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD						TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	85	504	12.35	2.73	2.82	3.80	1.88	1.28	.93	76	204	286	
		5	85	504	20.69	3.56	4.06	3.80	1.88	1.28	.93	76	204	286	
	3	1	85	504	12.35	2.98	3.02	3.80	1.88	1.28	.93	153	409	573	
		5	85	504	20.69	4.29	4.61	3.80	1.88	1.28	.93	153	409	573	
	4	1	85	504	12.35	3.11	3.14	3.80	1.88	1.28	.93	230	614	859	
		5	85	504	20.69	4.77	5.00	3.80	1.88	1.28	.93	230	614	859	
	5	1	73	546	12.48	3.28	3.29	3.86	1.92	1.30	.95	306	810	1129	
		5	73	546	20.92	5.20	5.38	3.86	1.92	1.30	.95	306	810	1129	
10	2	1	85	504	12.74	2.78	2.89	3.80	1.88	1.28	.93	76	204	286	
		5	85	504	21.04	3.60	4.12	3.80	1.88	1.28	.93	76	204	286	
	3	1	85	504	12.74	3.06	3.12	3.80	1.88	1.28	.93	153	409	573	
		5	85	504	21.04	4.35	4.68	3.80	1.88	1.28	.93	153	409	573	
	4	1	85	504	12.74	3.21	3.24	3.80	1.88	1.28	.93	230	614	859	
		5	85	504	21.04	4.84	5.08	3.80	1.88	1.28	.93	230	614	859	
	5	1	73	546	12.88	3.39	3.42	3.86	1.92	1.30	.95	306	810	1129	
		5	73	546	21.27	5.29	5.47	3.86	1.92	1.30	.95	306	810	1129	
20	2	1	85	504	13.52	2.88	3.03	3.80	1.88	1.28	.93	76	204	286	
		5	85	504	21.73	3.67	4.23	3.80	1.88	1.28	.93	76	204	286	
	3	1	85	504	13.52	3.22	3.31	3.80	1.88	1.28	.93	153	409	573	
		5	85	504	21.73	4.47	4.82	3.80	1.88	1.28	.93	153	409	573	
	4	1	85	504	13.52	3.40	3.46	3.80	1.88	1.28	.93	230	614	859	
		5	85	504	21.73	4.99	5.25	3.80	1.88	1.28	.93	230	614	859	
	5	1	73	546	13.67	3.63	3.66	3.86	1.92	1.30	.95	306	810	1129	
		5	73	546	21.97	5.46	5.66	3.86	1.92	1.30	.95	306	810	1129	
40	2	1	85	504	15.08	3.07	3.32	3.80	1.88	1.28	.93	76	204	286	
		5	85	504	23.12	3.82	4.45	3.80	1.88	1.28	.93	76	204	286	
	3	1	85	504	15.08	3.54	3.69	3.80	1.88	1.28	.93	153	409	573	
		5	85	504	23.12	4.70	5.11	3.80	1.88	1.28	.93	153	409	573	
	4	1	85	504	15.08	3.78	3.89	3.80	1.88	1.28	.93	230	614	859	
		5	85	504	23.12	5.28	5.58	3.80	1.88	1.28	.93	230	614	859	
	5	1	73	546	15.24	4.09	4.16	3.86	1.92	1.30	.95	306	810	1129	
		5	73	546	23.38	5.80	6.03	3.86	1.92	1.30	.95	306	810	1129	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD						TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	75	446	12.54	2.98	3.06	4.35	2.15	1.46	1.06	67	179	250	
		5	75	446	20.74	3.80	4.30	4.35	2.15	1.46	1.06	67	179	250	
	3	1	75	446	12.54	3.22	3.26	4.35	2.15	1.46	1.06	134	358	501	
		5	75	446	20.74	4.53	4.85	4.35	2.15	1.46	1.06	134	358	501	
	4	1	75	446	12.54	3.35	3.37	4.35	2.15	1.46	1.06	201	538	752	
		5	75	446	20.74	5.01	5.24	4.35	2.15	1.46	1.06	201	538	752	
	5	1	64	484	12.68	3.53	3.54	4.41	2.19	1.49	1.09	268	709	988	
		5	64	484	20.98	5.45	5.63	4.41	2.19	1.49	1.09	268	709	988	
10	2	1	75	446	12.93	3.02	3.13	4.35	2.15	1.46	1.06	67	179	250	
		5	75	446	21.08	3.84	4.36	4.35	2.15	1.46	1.06	67	179	250	
	3	1	75	446	12.93	3.30	3.36	4.35	2.15	1.46	1.06	134	358	501	
		5	75	446	21.08	4.59	4.92	4.35	2.15	1.46	1.06	134	358	501	
	4	1	75	446	12.93	3.45	3.48	4.35	2.15	1.46	1.06	201	538	752	
		5	75	446	21.08	5.08	5.32	4.35	2.15	1.46	1.06	201	538	752	
	5	1	64	484	13.07	3.64	3.66	4.41	2.19	1.49	1.09	268	709	988	
		5	64	484	21.32	5.53	5.72	4.41	2.19	1.49	1.09	268	709	988	
20	2	1	75	446	13.69	3.12	3.27	4.35	2.15	1.46	1.06	67	179	250	
		5	75	446	21.76	3.91	4.47	4.35	2.15	1.46	1.06	67	179	250	
	3	1	75	446	13.69	3.46	3.55	4.35	2.15	1.46	1.06	134	358	501	
		5	75	446	21.76	4.71	5.06	4.35	2.15	1.46	1.06	134	358	501	
	4	1	75	446	13.69	3.64	3.70	4.35	2.15	1.46	1.06	201	538	752	
		5	75	446	21.76	5.23	5.49	4.35	2.15	1.46	1.06	201	538	752	
	5	1	64	484	13.85	3.87	3.91	4.41	2.19	1.49	1.09	268	709	988	
		5	64	484	22.01	5.71	5.90	4.41	2.19	1.49	1.09	268	709	988	
40	2	1	75	446	15.23	3.31	3.56	4.35	2.15	1.46	1.06	67	179	250	
		5	75	446	23.13	4.06	4.69	4.35	2.15	1.46	1.06	67	179	250	
	3	1	75	446	15.23	3.78	3.93	4.35	2.15	1.46	1.06	134	358	501	
		5	75	446	23.13	4.94	5.35	4.35	2.15	1.46	1.06	134	358	501	
	4	1	75	446	15.23	4.03	4.13	4.35	2.15	1.46	1.06	201	538	752	
		5	75	446	23.13	5.52	5.82	4.35	2.15	1.46	1.06	201	538	752	
	5	1	64	484	15.40	4.34	4.40	4.41	2.19	1.49	1.09	268	709	988	
		5	64	484	23.40	6.05	6.28	4.41	2.19	1.49	1.09	268	709	988	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS					
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	66	404	12.77	3.22	3.30	4.89	2.42	1.64	1.19	59	159	222	
		5	66	404	20.85	4.05	4.54	4.89	2.42	1.64	1.19	59	159	222	
		1	66	404	12.77	3.47	3.51	4.89	2.42	1.64	1.19	119	318	445	
	3	5	66	404	20.85	4.78	5.09	4.89	2.42	1.64	1.19	119	318	445	
		1	66	404	12.77	3.60	3.62	4.89	2.42	1.64	1.19	179	477	668	
		5	66	404	20.85	5.25	5.48	4.89	2.42	1.64	1.19	179	477	668	
	4	1	66	404	12.77	3.60	3.62	4.89	2.42	1.64	1.19	238	630	878	
		5	66	404	20.85	5.25	5.48	4.89	2.42	1.64	1.19	238	630	878	
		1	57	436	12.91	3.77	3.78	4.96	2.46	1.67	1.22	238	630	878	
	5	5	57	436	21.08	5.69	5.87	4.96	2.46	1.67	1.22	238	630	878	
		1	66	404	13.15	3.27	3.37	4.89	2.42	1.64	1.19	59	159	222	
		5	66	404	21.18	4.09	4.60	4.89	2.42	1.64	1.19	59	159	222	
	10	3	1	66	404	13.15	3.55	3.60	4.89	2.42	1.64	1.19	119	318	445
			5	66	404	21.18	4.83	5.16	4.89	2.42	1.64	1.19	119	318	445
			1	66	404	13.15	3.69	3.72	4.89	2.42	1.64	1.19	179	477	668
4		5	66	404	21.18	5.33	5.57	4.89	2.42	1.64	1.19	179	477	668	
		1	57	436	13.29	3.89	3.91	4.96	2.46	1.67	1.22	238	630	878	
		5	57	436	21.42	5.78	5.96	4.96	2.46	1.67	1.22	238	630	878	
20		2	1	66	404	13.91	3.37	3.52	4.89	2.42	1.64	1.19	59	159	222
			5	66	404	21.86	4.16	4.71	4.89	2.42	1.64	1.19	59	159	222
			1	66	404	13.91	3.71	3.79	4.89	2.42	1.64	1.19	119	318	445
	3	5	66	404	21.86	4.95	5.31	4.89	2.42	1.64	1.19	119	318	445	
		1	66	404	13.91	3.89	3.94	4.89	2.42	1.64	1.19	179	477	668	
		5	66	404	21.86	5.47	5.73	4.89	2.42	1.64	1.19	179	477	668	
	4	1	57	436	14.06	4.12	4.15	4.96	2.46	1.67	1.22	238	630	878	
		5	57	436	22.10	5.95	6.15	4.96	2.46	1.67	1.22	238	630	878	
		1	66	404	15.42	3.56	3.80	4.89	2.42	1.64	1.19	59	159	222	
40	2	5	66	404	23.20	4.31	4.93	4.89	2.42	1.64	1.19	59	159	222	
		1	66	404	15.42	4.03	4.17	4.89	2.42	1.64	1.19	119	318	445	
		5	66	404	23.20	5.19	5.59	4.89	2.42	1.64	1.19	119	318	445	
	3	1	66	404	15.42	4.27	4.37	4.89	2.42	1.64	1.19	179	477	668	
		5	66	404	23.20	5.77	6.06	4.89	2.42	1.64	1.19	179	477	668	
		1	57	436	15.58	4.58	4.65	4.96	2.46	1.67	1.22	238	630	878	
	4	5	57	436	23.46	6.30	6.52	4.96	2.46	1.67	1.22	238	630	878	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS					
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	60	364	12.99	3.46	3.54	5.43	2.69	1.82	1.32	53	143	200	
		5	60	364	20.94	4.29	4.78	5.43	2.69	1.82	1.32	53	143	200	
		1	60	364	12.99	3.71	3.74	5.43	2.69	1.82	1.32	107	286	401	
	3	5	60	364	20.94	5.02	5.33	5.43	2.69	1.82	1.32	107	286	401	
		1	60	364	12.99	3.84	3.86	5.43	2.69	1.82	1.32	161	430	602	
		5	60	364	20.94	5.50	5.72	5.43	2.69	1.82	1.32	161	430	602	
	4	1	51	398	13.15	4.02	4.03	5.51	2.74	1.86	1.36	214	567	790	
		5	51	398	21.21	5.94	6.12	5.51	2.74	1.86	1.36	214	567	790	
		1	60	364	13.36	3.51	3.61	5.43	2.69	1.82	1.32	53	143	200	
	10	2	5	60	364	21.27	4.33	4.84	5.43	2.69	1.82	1.32	53	143	200
			1	60	364	13.36	3.79	3.84	5.43	2.69	1.82	1.32	107	286	401
			5	60	364	21.27	5.08	5.40	5.43	2.69	1.82	1.32	107	286	401
		3	1	60	364	13.36	3.93	3.96	5.43	2.69	1.82	1.32	161	430	602
			5	60	364	21.27	5.57	5.80	5.43	2.69	1.82	1.32	161	430	602
			1	51	398	13.53	4.14	4.15	5.51	2.74	1.86	1.36	214	567	790
4		5	51	398	21.54	6.03	6.21	5.51	2.74	1.86	1.36	214	567	790	
		1	60	364	14.11	3.61	3.75	5.43	2.69	1.82	1.32	53	143	200	
		5	60	364	21.93	4.40	4.95	5.43	2.69	1.82	1.32	53	143	200	
20	2	1	60	364	14.11	3.95	4.03	5.43	2.69	1.82	1.32	107	286	401	
		5	60	364	21.93	5.19	5.54	5.43	2.69	1.82	1.32	107	286	401	
		1	60	364	14.11	4.13	4.18	5.43	2.69	1.82	1.32	161	430	602	
	3	5	60	364	21.93	5.71	5.97	5.43	2.69	1.82	1.32	161	430	602	
		1	51	398	14.28	4.37	4.40	5.51	2.74	1.86	1.36	214	567	790	
		5	51	398	22.22	6.20	6.39	5.51	2.74	1.86	1.36	214	567	790	
	40	2	1	60	364	15.60	3.80	4.04	5.43	2.69	1.82	1.32	53	143	200
			5	60	364	23.26	4.55	5.17	5.43	2.69	1.82	1.32	53	143	200
			1	60	364	15.60	4.27	4.41	5.43	2.69	1.82	1.32	107	286	401
3		5	60	364	23.26	5.43	5.83	5.43	2.69	1.82	1.32	107	286	401	
		1	60	364	15.60	4.51	4.61	5.43	2.69	1.82	1.32	161	430	602	
		5	60	364	23.26	6.01	6.30	5.43	2.69	1.82	1.32	161	430	602	
4		1	51	398	15.79	4.83	4.90	5.51	2.74	1.86	1.36	214	567	790	
		5	51	398	23.56	6.54	6.77	5.51	2.74	1.86	1.36	214	567	790	

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CW LNG	MRG ORD	NO. CF			PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECCNDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	50	308	13.49	3.95	4.02	6.52	3.23	2.19	1.59	44	119	167	
		5	50	308	21.24	4.78	5.26	6.52	3.23	2.19	1.59	44	119	167	
		1	50	308	13.49	4.19	4.22	6.52	3.23	2.19	1.59	89	239	334	
	3	5	50	308	21.24	5.50	5.81	6.52	3.23	2.19	1.59	89	239	334	
		1	50	308	13.49	4.32	4.34	6.52	3.23	2.19	1.59	134	358	501	
		5	50	308	21.24	5.98	6.20	6.52	3.23	2.19	1.59	134	358	501	
	4	1	43	334	13.64	4.51	4.51	6.61	3.28	2.23	1.63	178	473	659	
		5	43	334	21.49	6.43	6.60	6.61	3.28	2.23	1.63	178	473	659	
		1	50	308	13.85	4.00	4.09	6.52	3.23	2.19	1.59	44	119	167	
	10	2	5	50	308	21.56	4.81	5.32	6.52	3.23	2.19	1.59	44	119	167
			1	50	308	13.85	4.27	4.32	6.52	3.23	2.19	1.59	89	239	334
			5	50	308	21.56	5.56	5.88	6.52	3.23	2.19	1.59	89	239	334
		3	1	50	308	13.85	4.42	4.44	6.52	3.23	2.19	1.59	134	358	501
			5	50	308	21.56	6.05	6.28	6.52	3.23	2.19	1.59	134	358	501
			1	43	334	14.01	4.63	4.64	6.61	3.28	2.23	1.63	178	473	659
4		5	43	334	21.81	6.52	6.70	6.61	3.28	2.23	1.63	178	473	659	
		1	50	308	14.58	4.09	4.23	6.52	3.23	2.19	1.59	44	119	167	
		5	50	308	22.20	4.89	5.43	6.52	3.23	2.19	1.59	44	119	167	
20		2	1	50	308	14.58	4.43	4.51	6.52	3.23	2.19	1.59	89	239	334
			5	50	308	22.20	5.68	6.02	6.52	3.23	2.19	1.59	89	239	334
			1	50	308	14.58	4.61	4.66	6.52	3.23	2.19	1.59	134	358	501
		3	5	50	308	22.20	6.20	6.45	6.52	3.23	2.19	1.59	134	358	501
			1	43	334	14.75	4.86	4.89	6.61	3.28	2.23	1.63	178	473	659
			5	43	334	22.47	6.69	6.88	6.61	3.28	2.23	1.63	178	473	659
	40	2	1	50	308	16.03	4.28	4.52	6.52	3.23	2.19	1.59	44	119	167
			5	50	308	23.50	5.03	5.65	6.52	3.23	2.19	1.59	44	119	167
			1	50	308	16.03	4.75	4.89	6.52	3.23	2.19	1.59	89	239	334
		3	5	50	308	23.50	5.91	6.31	6.52	3.23	2.19	1.59	89	239	334
			1	50	308	16.03	5.00	5.09	6.52	3.23	2.19	1.59	134	358	501
			5	50	308	23.50	6.49	6.78	6.52	3.23	2.19	1.59	134	358	501
		4	1	43	334	16.22	5.32	5.38	6.61	3.28	2.23	1.63	178	473	659
			5	43	334	23.78	7.04	7.25	6.61	3.28	2.23	1.63	178	473	659

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CW LNG	MRG ORD	NO. CF			PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECCNDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	42	270	14.04	4.44	4.51	7.62	3.77	2.56	1.86	38	102	143	
		5	42	270	21.63	5.27	5.75	7.62	3.77	2.56	1.86	38	102	143	
		1	42	270	14.04	4.68	4.71	7.62	3.77	2.56	1.86	76	204	286	
	3	5	42	270	21.63	6.00	6.30	7.62	3.77	2.56	1.86	76	204	286	
		1	42	270	14.04	4.82	4.83	7.62	3.77	2.56	1.86	115	307	429	
		5	42	270	21.63	6.47	6.69	7.62	3.77	2.56	1.86	115	307	429	
	4	1	36	292	14.20	5.02	5.01	7.73	3.84	2.61	1.91	153	404	563	
		5	36	292	21.88	6.94	7.10	7.73	3.84	2.61	1.91	153	404	563	
		1	42	270	14.39	4.49	4.58	7.62	3.77	2.56	1.86	38	102	143	
	10	2	5	42	270	21.94	5.31	5.81	7.62	3.77	2.56	1.86	38	102	143
			1	42	270	14.39	4.77	4.81	7.62	3.77	2.56	1.86	76	204	286
			5	42	270	21.94	6.05	6.37	7.62	3.77	2.56	1.86	76	204	286
		3	1	42	270	14.39	4.91	4.93	7.62	3.77	2.56	1.86	115	307	429
			5	42	270	21.94	6.55	6.77	7.62	3.77	2.56	1.86	115	307	429
			1	36	292	14.56	5.13	5.14	7.73	3.84	2.61	1.91	153	404	563
4		5	36	292	22.20	7.02	7.19	7.73	3.84	2.61	1.91	153	404	563	
		1	42	270	15.11	4.59	4.72	7.62	3.77	2.56	1.86	38	102	143	
		5	42	270	22.58	5.38	5.92	7.62	3.77	2.56	1.86	38	102	143	
20		2	1	42	270	15.11	4.93	5.00	7.62	3.77	2.56	1.86	76	204	286
			5	42	270	22.58	6.17	6.51	7.62	3.77	2.56	1.86	76	204	286
			1	42	270	15.11	5.11	5.15	7.62	3.77	2.56	1.86	115	307	429
		3	5	42	270	22.58	6.69	6.94	7.62	3.77	2.56	1.86	115	307	429
			1	36	292	15.28	5.36	5.39	7.73	3.84	2.61	1.91	153	404	563
			5	36	292	22.84	7.20	7.38	7.73	3.84	2.61	1.91	153	404	563
	40	2	1	42	270	16.53	4.78	5.01	7.62	3.77	2.56	1.86	38	102	143
			5	42	270	23.84	5.53	6.14	7.62	3.77	2.56	1.86	38	102	143
			1	42	270	16.53	5.25	5.38	7.62	3.77	2.56	1.86	76	204	286
		3	5	42	270	23.84	6.41	6.80	7.62	3.77	2.56	1.86	76	204	286
			1	42	270	16.53	5.49	5.58	7.62	3.77	2.56	1.86	115	307	429
			5	42	270	23.84	6.99	7.27	7.62	3.77	2.56	1.86	115	307	429
		4	1	36	292	16.72	5.83	5.88	7.73	3.84	2.61	1.91	153	404	563
			5	36	292	24.12	7.54	7.75	7.73	3.84	2.61	1.91	153	404	563

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CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD					TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	37	238	14.59	4.92	4.99	8.71	4.31	2.92	2.12	33	89	125	
		5	37	238	22.02	5.75	6.23	8.71	4.31	2.92	2.12	33	89	125	
	3	1	37	238	14.59	5.17	5.19	8.71	4.31	2.92	2.12	67	179	250	
		5	37	238	22.02	6.48	6.78	8.71	4.31	2.92	2.12	67	179	250	
	4	1	37	238	14.59	5.30	5.30	8.71	4.31	2.92	2.12	100	268	375	
		5	37	238	22.02	6.96	7.17	8.71	4.31	2.92	2.12	100	268	375	
	5	1	32	256	14.74	5.51	5.50	8.82	4.38	2.98	2.18	134	354	494	
		5	32	256	22.27	7.43	7.59	8.82	4.38	2.98	2.18	134	354	494	
	10	2	1	37	238	14.94	4.97	5.06	8.71	4.31	2.92	2.12	33	89	125
			5	37	238	22.33	5.79	6.29	8.71	4.31	2.92	2.12	33	89	125
3		1	37	238	14.94	5.25	5.29	8.71	4.31	2.92	2.12	67	179	250	
		5	37	238	22.33	6.54	6.85	8.71	4.31	2.92	2.12	67	179	250	
4		1	37	238	14.94	5.40	5.41	8.71	4.31	2.92	2.12	100	268	375	
		5	37	238	22.33	7.03	7.25	8.71	4.31	2.92	2.12	100	268	375	
5		1	32	256	15.10	5.62	5.62	8.82	4.38	2.98	2.18	134	354	494	
		5	32	256	22.58	7.51	7.68	8.82	4.38	2.98	2.18	134	354	494	
20		2	1	37	238	15.63	5.07	5.20	8.71	4.31	2.92	2.12	33	89	125
			5	37	238	22.95	5.86	6.40	8.71	4.31	2.92	2.12	33	89	125
	3	1	37	238	15.63	5.41	5.48	8.71	4.31	2.92	2.12	67	179	250	
		5	37	238	22.95	6.66	6.99	8.71	4.31	2.92	2.12	67	179	250	
	4	1	37	238	15.63	5.59	5.63	8.71	4.31	2.92	2.12	100	268	375	
		5	37	238	22.95	7.18	7.42	8.71	4.31	2.92	2.12	100	268	375	
	5	1	32	256	15.80	5.85	5.87	8.82	4.38	2.98	2.18	134	354	494	
		5	32	256	23.21	7.68	7.86	8.82	4.38	2.98	2.18	134	354	494	
	40	2	1	37	238	17.03	5.26	5.49	8.71	4.31	2.92	2.12	33	89	125
			5	37	238	24.19	6.01	6.62	8.71	4.31	2.92	2.12	33	89	125
3		1	37	238	17.03	5.73	5.86	8.71	4.31	2.92	2.12	67	179	250	
		5	37	238	24.19	6.89	7.28	8.71	4.31	2.92	2.12	67	179	250	
4		1	37	238	17.03	5.97	6.06	8.71	4.31	2.92	2.12	100	268	375	
		5	37	238	24.19	7.47	7.75	8.71	4.31	2.92	2.12	100	268	375	
5		1	32	256	17.21	6.31	6.36	8.82	4.38	2.98	2.18	134	354	494	
		5	32	256	24.46	8.03	8.24	8.82	4.38	2.98	2.18	134	354	494	

180 CHARACTER DATA RECORD 80K 1410

CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD					TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	33	212	15.15	5.41	5.47	9.79	4.85	3.29	2.39	29	79	111	
		5	33	212	22.45	6.24	6.71	9.79	4.85	3.29	2.39	29	79	111	
	3	1	33	212	15.15	5.65	5.67	9.79	4.85	3.29	2.39	59	159	222	
		5	33	212	22.45	6.96	7.26	9.79	4.85	3.29	2.39	59	159	222	
	4	1	33	212	15.15	5.79	5.78	9.79	4.85	3.29	2.39	89	238	334	
		5	33	212	22.45	7.44	7.65	9.79	4.85	3.29	2.39	89	238	334	
	5	1	28	230	15.34	6.01	6.00	9.93	4.94	3.36	2.46	119	314	438	
		5	28	230	22.73	7.93	8.08	9.93	4.94	3.36	2.46	119	314	438	
	10	2	1	33	212	15.49	5.46	5.54	9.79	4.85	3.29	2.39	29	79	111
			5	33	212	22.75	6.28	6.77	9.79	4.85	3.29	2.39	29	79	111
3		1	33	212	15.49	5.73	5.77	9.79	4.85	3.29	2.39	59	159	222	
		5	33	212	22.75	7.02	7.33	9.79	4.85	3.29	2.39	59	159	222	
4		1	33	212	15.49	5.88	5.89	9.79	4.85	3.29	2.39	89	238	334	
		5	33	212	22.75	7.52	7.73	9.79	4.85	3.29	2.39	89	238	334	
5		1	28	230	15.68	6.12	6.12	9.93	4.94	3.36	2.46	119	314	438	
		5	28	230	23.04	8.02	8.18	9.93	4.94	3.36	2.46	119	314	438	
20		2	1	33	212	16.18	5.55	5.68	9.79	4.85	3.29	2.39	29	79	111
			5	33	212	23.36	6.35	6.88	9.79	4.85	3.29	2.39	29	79	111
	3	1	33	212	16.18	5.89	5.96	9.79	4.85	3.29	2.39	59	159	222	
		5	33	212	23.36	7.14	7.47	9.79	4.85	3.29	2.39	59	159	222	
	4	1	33	212	16.18	6.07	6.11	9.79	4.85	3.29	2.39	89	238	334	
		5	33	212	23.36	7.66	7.90	9.79	4.85	3.29	2.39	89	238	334	
	5	1	28	230	16.38	6.36	6.37	9.93	4.94	3.36	2.46	119	314	438	
		5	28	230	23.66	8.19	8.36	9.93	4.94	3.36	2.46	119	314	438	
	40	2	1	33	212	17.55	5.75	5.97	9.79	4.85	3.29	2.39	29	79	111
			5	33	212	24.58	6.50	7.10	9.79	4.85	3.29	2.39	29	79	111
3		1	33	212	17.55	6.22	6.34	9.79	4.85	3.29	2.39	59	159	222	
		5	33	212	24.58	7.38	7.76	9.79	4.85	3.29	2.39	59	159	222	
4		1	33	212	17.55	6.46	6.54	9.79	4.85	3.29	2.39	89	238	334	
		5	33	212	24.58	7.96	8.23	9.79	4.85	3.29	2.39	89	238	334	
5		1	28	230	17.77	6.82	6.86	9.93	4.94	3.36	2.46	119	314	438	
		5	28	230	24.89	8.53	8.73	9.93	4.94	3.36	2.46	119	314	438	



200 CHARACTER DATA RECORD 80K 1410

CW LNG	MRG ORD	NO. CF	PROCESS TIME						TAPE TIME				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G	MILLISECONDS/RECORD			MILLISECONDS/RECORD				200 CPI	556 CPI	800 CPI	
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI				
5	2	1	30	190	15.72	5.89	5.94	10.87	5.38	3.65	2.65	26	71	100	
		5	30	190	22.88	6.72	7.19	10.87	5.38	3.65	2.65	26	71	100	
		3	1	30	190	15.72	6.14	6.15	10.87	5.38	3.65	2.65	53	143	200
	3	5	30	190	22.88	7.45	7.74	10.87	5.38	3.65	2.65	53	143	200	
		4	1	30	190	15.72	6.27	6.26	10.87	5.38	3.65	2.65	80	215	301
		5	30	190	22.88	7.92	8.13	10.87	5.38	3.65	2.65	80	215	301	
	5	1	25	210	15.95	6.51	6.49	11.05	5.50	3.74	2.74	107	283	394	
		5	25	210	23.23	8.43	8.58	11.05	5.50	3.74	2.74	107	283	394	
		10	2	1	30	190	16.05	5.94	6.02	10.87	5.38	3.65	2.65	26	71
	5	5	30	190	23.18	6.76	7.24	10.87	5.38	3.65	2.65	26	71	100	
		3	1	30	190	16.05	6.22	6.24	10.87	5.38	3.65	2.65	53	143	200
		5	30	190	23.18	7.50	7.81	10.87	5.38	3.65	2.65	53	143	200	
	4	1	30	190	16.05	6.36	6.37	10.87	5.38	3.65	2.65	80	215	301	
		5	30	190	23.18	8.00	8.21	10.87	5.38	3.65	2.65	80	215	301	
		5	1	25	210	16.29	6.62	6.62	11.05	5.50	3.74	2.74	107	283	394
5	5	25	210	23.54	8.52	8.67	11.05	5.50	3.74	2.74	107	283	394		
	20	2	1	30	190	16.73	6.04	6.16	10.87	5.38	3.65	2.65	26	71	100
	5	30	190	23.78	6.83	7.35	10.87	5.38	3.65	2.65	26	71	100		
3	1	30	190	16.73	6.38	6.44	10.87	5.38	3.65	2.65	53	143	200		
	5	30	190	23.78	7.62	7.95	10.87	5.38	3.65	2.65	53	143	200		
	4	1	30	190	16.73	6.56	6.58	10.87	5.38	3.65	2.65	80	215	301	
5	5	30	190	23.78	8.14	8.37	10.87	5.38	3.65	2.65	80	215	301		
	1	25	210	16.97	6.86	6.86	11.05	5.50	3.74	2.74	107	283	394		
	5	25	210	24.14	8.69	8.86	11.05	5.50	3.74	2.74	107	283	394		
40	2	1	30	190	18.07	6.23	6.45	10.87	5.38	3.65	2.65	26	71	100	
		5	30	190	24.97	6.98	7.57	10.87	5.38	3.65	2.65	26	71	100	
		3	1	30	190	18.07	6.70	6.82	10.87	5.38	3.65	2.65	53	143	200
	3	5	30	190	24.97	7.86	8.23	10.87	5.38	3.65	2.65	53	143	200	
		4	1	30	190	18.07	6.94	7.01	10.87	5.38	3.65	2.65	80	215	301
		5	30	190	24.97	8.44	8.70	10.87	5.38	3.65	2.65	80	215	301	
	5	1	25	210	18.34	7.32	7.36	11.05	5.50	3.74	2.74	107	283	394	
		5	25	210	25.36	9.03	9.23	11.05	5.50	3.74	2.74	107	283	394	

220 CHARACTER DATA RECORD 80K 1410

CW LNG	MRG ORD	NO. CF	PROCESS TIME						TAPE TIME				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G	MILLISECONDS/RECORD			MILLISECONDS/RECORD				200 CPI	556 CPI	800 CPI	
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI				
5	2	1	27	174	16.32	6.38	6.43	11.97	5.93	4.02	2.92	24	65	91	
		5	27	174	23.38	7.21	7.67	11.97	5.93	4.02	2.92	24	65	91	
		3	1	27	174	16.32	6.63	6.64	11.97	5.93	4.02	2.92	48	130	182
	4	5	27	174	23.38	7.94	8.22	11.97	5.93	4.02	2.92	48	130	182	
		1	27	174	16.32	6.76	6.75	11.97	5.93	4.02	2.92	73	195	273	
		5	27	174	23.38	8.42	8.61	11.97	5.93	4.02	2.92	73	195	273	
	5	1	23	190	16.53	7.00	6.97	12.14	6.04	4.11	3.01	97	257	358	
		5	23	190	23.70	8.92	9.06	12.14	6.04	4.11	3.01	97	257	358	
		10	2	1	27	174	16.66	6.43	6.50	11.97	5.93	4.02	2.92	24	65
	5	5	27	174	23.68	7.25	7.73	11.97	5.93	4.02	2.92	24	65	91	
		3	1	27	174	16.66	6.71	6.73	11.97	5.93	4.02	2.92	48	130	182
		5	27	174	23.68	8.00	8.29	11.97	5.93	4.02	2.92	48	130	182	
	4	1	27	174	16.66	6.85	6.86	11.97	5.93	4.02	2.92	73	195	273	
		5	27	174	23.68	8.49	8.70	11.97	5.93	4.02	2.92	73	195	273	
		5	1	23	190	16.87	7.11	7.10	12.14	6.04	4.11	3.01	97	257	358
5	5	23	190	24.00	9.00	9.16	12.14	6.04	4.11	3.01	97	257	358		
	20	2	1	27	174	17.32	6.53	6.65	11.97	5.93	4.02	2.92	24	65	91
	5	27	174	24.26	7.32	7.84	11.97	5.93	4.02	2.92	24	65	91		
3	1	27	174	17.32	6.87	6.92	11.97	5.93	4.02	2.92	48	130	182		
	5	27	174	24.26	8.11	8.44	11.97	5.93	4.02	2.92	48	130	182		
	4	1	27	174	17.32	7.05	7.07	11.97	5.93	4.02	2.92	73	195	273	
5	5	27	174	24.26	8.64	8.86	11.97	5.93	4.02	2.92	73	195	273		
	1	23	190	17.54	7.34	7.35	12.14	6.04	4.11	3.01	97	257	358		
	5	23	190	24.59	9.18	9.34	12.14	6.04	4.11	3.01	97	257	358		
40	2	1	27	174	18.65	6.72	6.93	11.97	5.93	4.02	2.92	24	65	91	
		5	27	174	25.44	7.47	8.06	11.97	5.93	4.02	2.92	24	65	91	
		3	1	27	174	18.65	7.19	7.30	11.97	5.93	4.02	2.92	48	130	182
	4	5	27	174	25.44	8.35	8.72	11.97	5.93	4.02	2.92	48	130	182	
		1	27	174	18.65	7.43	7.50	11.97	5.93	4.02	2.92	73	195	273	
		5	27	174	25.44	8.93	9.19	11.97	5.93	4.02	2.92	73	195	273	
	5	1	23	190	18.89	7.81	7.84	12.14	6.04	4.11	3.01	97	257	358	
		5	23	190	25.79	9.52	9.71	12.14	6.04	4.11	3.01	97	257	358	

240 CHARACTER DATA RECORD 80K 1410

CW LNG	MRG ORD	NO. CF	PROCESS TIME						TAPE TIME				MAXIMUM NUMBER OF		
			B	G	MILLISECONDS/RECORD			MILLISECONDS/RECORD				RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	25	160	16.92	6.86	6.91	13.05	6.46	4.38	3.18	22	59	83	
		5	25	160	23.88	7.69	8.15	13.05	6.46	4.38	3.18	22	59	83	
	3	1	25	160	16.92	7.11	7.11	13.05	6.46	4.38	3.18	44	119	167	
		5	25	160	23.88	8.42	8.70	13.05	6.46	4.38	3.18	44	119	167	
	4	1	25	160	16.92	7.24	7.22	13.05	6.46	4.38	3.18	67	179	250	
		5	25	160	23.88	8.90	9.09	13.05	6.46	4.38	3.18	67	179	250	
	5	1	21	176	17.16	7.50	7.47	13.25	6.59	4.49	3.29	89	236	328	
		5	21	176	24.23	9.42	9.56	13.25	6.59	4.49	3.29	89	236	328	
10	2	1	25	160	17.25	6.91	6.98	13.05	6.46	4.38	3.18	22	59	83	
		5	25	160	24.17	7.73	8.21	13.05	6.46	4.38	3.18	22	59	83	
	3	1	25	160	17.25	7.19	7.21	13.05	6.46	4.38	3.18	44	119	167	
		5	25	160	24.17	8.48	8.77	13.05	6.46	4.38	3.18	44	119	167	
	4	1	25	160	17.25	7.33	7.33	13.05	6.46	4.38	3.18	67	179	250	
		5	25	160	24.17	8.97	9.17	13.05	6.46	4.38	3.18	67	179	250	
	5	1	21	176	17.49	7.61	7.59	13.25	6.59	4.49	3.29	89	236	328	
		5	21	176	24.53	9.50	9.65	13.25	6.59	4.49	3.29	89	236	328	
20	2	1	25	160	17.91	7.01	7.12	13.05	6.46	4.38	3.18	22	59	83	
		5	25	160	24.75	7.80	8.31	13.05	6.46	4.38	3.18	22	59	83	
	3	1	25	160	17.91	7.35	7.40	13.05	6.46	4.38	3.18	44	119	167	
		5	25	160	24.75	8.59	8.91	13.05	6.46	4.38	3.18	44	119	167	
	4	1	25	160	17.91	7.53	7.55	13.05	6.46	4.38	3.18	67	179	250	
		5	25	160	24.75	9.12	9.34	13.05	6.46	4.38	3.18	67	179	250	
	5	1	21	176	18.16	7.84	7.84	13.25	6.59	4.49	3.29	89	236	328	
		5	21	176	25.12	9.67	9.84	13.25	6.59	4.49	3.29	89	236	328	
40	2	1	25	160	19.21	7.20	7.41	13.05	6.46	4.38	3.18	22	59	83	
		5	25	160	25.91	7.95	8.53	13.05	6.46	4.38	3.18	22	59	83	
	3	1	25	160	19.21	7.67	7.78	13.05	6.46	4.38	3.18	44	119	167	
		5	25	160	25.91	8.83	9.20	13.05	6.46	4.38	3.18	44	119	167	
	4	1	25	160	19.21	7.91	7.97	13.05	6.46	4.38	3.18	67	179	250	
		5	25	160	25.91	9.41	9.66	13.05	6.46	4.38	3.18	67	179	250	
	5	1	21	176	19.49	8.30	8.34	13.25	6.59	4.49	3.29	89	236	328	
		5	21	176	26.30	10.02	10.21	13.25	6.59	4.49	3.29	89	236	328	

260 CHARACTER DATA RECORD 80K 1410

CW LNG	MRG ORD	NO. CF	PROCESS TIME						TAPE TIME				MAXIMUM NUMBER OF		
			B	G	MILLISECONDS/RECORD			MILLISECONDS/RECORD				RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	23	148	17.54	7.35	7.39	14.14	7.00	4.75	3.45	20	55	77	
		5	23	148	24.40	8.18	8.63	14.14	7.00	4.75	3.45	20	55	77	
	3	1	23	148	17.54	7.59	7.59	14.14	7.00	4.75	3.45	41	110	154	
		5	23	148	24.40	8.91	9.18	14.14	7.00	4.75	3.45	41	110	154	
	4	1	23	148	17.54	7.73	7.71	14.14	7.00	4.75	3.45	62	165	231	
		5	23	148	24.40	9.38	9.57	14.14	7.00	4.75	3.45	62	165	231	
	5	1	19	164	17.81	8.01	7.98	14.38	7.16	4.87	3.57	82	217	302	
		5	19	164	24.80	9.93	10.06	14.38	7.16	4.87	3.57	82	217	302	
10	2	1	23	148	17.86	7.40	7.46	14.14	7.00	4.75	3.45	20	55	77	
		5	23	148	24.69	8.22	8.69	14.14	7.00	4.75	3.45	20	55	77	
	3	1	23	148	17.86	7.68	7.69	14.14	7.00	4.75	3.45	41	110	154	
		5	23	148	24.69	8.96	9.25	14.14	7.00	4.75	3.45	41	110	154	
	4	1	23	148	17.86	7.82	7.81	14.14	7.00	4.75	3.45	62	165	231	
		5	23	148	24.69	9.46	9.65	14.14	7.00	4.75	3.45	62	165	231	
	5	1	19	164	18.14	8.12	8.10	14.38	7.16	4.87	3.57	82	217	302	
		5	19	164	25.09	10.02	10.16	14.38	7.16	4.87	3.57	82	217	302	
20	2	1	23	148	18.51	7.50	7.60	14.14	7.00	4.75	3.45	20	55	77	
		5	23	148	25.26	8.29	8.80	14.14	7.00	4.75	3.45	20	55	77	
	3	1	23	148	18.51	7.84	7.88	14.14	7.00	4.75	3.45	41	110	154	
		5	23	148	25.26	9.08	9.39	14.14	7.00	4.75	3.45	41	110	154	
	4	1	23	148	18.51	8.02	8.03	14.14	7.00	4.75	3.45	62	165	231	
		5	23	148	25.26	9.60	9.82	14.14	7.00	4.75	3.45	62	165	231	
	5	1	19	164	18.79	8.35	8.35	14.38	7.16	4.87	3.57	82	217	302	
		5	19	164	25.67	10.19	10.34	14.38	7.16	4.87	3.57	82	217	302	
40	2	1	23	148	19.80	7.69	7.89	14.14	7.00	4.75	3.45	20	55	77	
		5	23	148	26.41	8.44	9.02	14.14	7.00	4.75	3.45	20	55	77	
	3	1	23	148	19.80	8.16	8.26	14.14	7.00	4.75	3.45	41	110	154	
		5	23	148	26.41	9.32	9.68	14.14	7.00	4.75	3.45	41	110	154	
	4	1	23	148	19.80	8.40	8.46	14.14	7.00	4.75	3.45	62	165	231	
		5	23	148	26.41	9.90	10.15	14.14	7.00	4.75	3.45	62	165	231	
	5	1	19	164	20.11	8.82	8.84	14.38	7.16	4.87	3.57	82	217	302	
		5	19	164	26.83	10.53	10.71	14.38	7.16	4.87	3.57	82	217	302	

280 CHARACTER DATA RECORD 80K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	21	140	18.20	7.85	7.88	15.25	7.55	5.13	3.73	19	51	71	
		5	21	140	24.99	8.68	9.13	15.25	7.55	5.13	3.73	19	51	71	
	3	1	21	140	18.20	8.09	8.09	15.25	7.55	5.13	3.73	38	102	143	
		5	21	140	24.99	9.40	9.68	15.25	7.55	5.13	3.73	38	102	143	
	4	1	21	140	18.20	8.22	8.20	15.25	7.55	5.13	3.73	57	153	214	
		5	21	140	24.99	9.88	10.07	15.25	7.55	5.13	3.73	57	153	214	
	5	1	18	150	18.40	8.49	8.45	15.46	7.69	5.23	3.83	76	202	281	
		5	18	150	25.28	10.41	10.54	15.46	7.69	5.23	3.83	76	202	281	
	10	2	1	21	140	18.52	7.90	7.96	15.25	7.55	5.13	3.73	19	51	71
			5	21	140	25.27	8.71	9.18	15.25	7.55	5.13	3.73	19	51	71
3		1	21	140	18.52	8.17	8.18	15.25	7.55	5.13	3.73	38	102	143	
		5	21	140	25.27	9.46	9.75	15.25	7.55	5.13	3.73	38	102	143	
4		1	21	140	18.52	8.32	8.31	15.25	7.55	5.13	3.73	57	153	214	
		5	21	140	25.27	9.96	10.15	15.25	7.55	5.13	3.73	57	153	214	
5		1	18	150	18.73	8.60	8.57	15.46	7.69	5.23	3.83	76	202	281	
		5	18	150	25.57	10.49	10.63	15.46	7.69	5.23	3.83	76	202	281	
20		2	1	21	140	19.15	7.99	8.10	15.25	7.55	5.13	3.73	19	51	71
			5	21	140	25.84	8.79	9.29	15.25	7.55	5.13	3.73	19	51	71
	3	1	21	140	19.15	8.33	8.37	15.25	7.55	5.13	3.73	38	102	143	
		5	21	140	25.84	9.58	9.89	15.25	7.55	5.13	3.73	38	102	143	
	4	1	21	140	19.15	8.51	8.52	15.25	7.55	5.13	3.73	57	153	214	
		5	21	140	25.84	10.10	10.31	15.25	7.55	5.13	3.73	57	153	214	
	5	1	18	150	19.37	8.83	8.82	15.46	7.69	5.23	3.83	76	202	281	
		5	18	150	26.14	10.67	10.82	15.46	7.69	5.23	3.83	76	202	281	
	40	2	1	21	140	20.43	8.19	8.38	15.25	7.55	5.13	3.73	19	51	71
			5	21	140	26.98	8.93	9.51	15.25	7.55	5.13	3.73	19	51	71
3		1	21	140	20.43	8.65	8.76	15.25	7.55	5.13	3.73	38	102	143	
		5	21	140	26.98	9.82	10.17	15.25	7.55	5.13	3.73	38	102	143	
4		1	21	140	20.43	8.90	8.95	15.25	7.55	5.13	3.73	57	153	214	
		5	21	140	26.98	10.40	10.64	15.25	7.55	5.13	3.73	57	153	214	
5		1	18	150	20.67	9.30	9.32	15.46	7.69	5.23	3.83	76	202	281	
		5	18	150	27.29	11.01	11.19	15.46	7.69	5.23	3.83	76	202	281	

300 CHARACTER DATA RECORD 80K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	20	128	18.78	8.32	8.35	16.31	8.07	5.48	3.98	17	47	66	
		5	20	128	25.47	9.15	9.59	16.31	8.07	5.48	3.98	17	47	66	
	3	1	20	128	18.78	8.56	8.55	16.31	8.07	5.48	3.98	35	95	133	
		5	20	128	25.47	9.87	10.14	16.31	8.07	5.48	3.98	35	95	133	
	4	1	20	128	18.78	8.70	8.67	16.31	8.07	5.48	3.98	53	143	200	
		5	20	128	25.47	10.35	10.53	16.31	8.07	5.48	3.98	53	143	200	
	5	1	17	140	19.03	8.97	8.93	16.54	8.23	5.60	4.10	71	189	263	
		5	17	140	25.82	10.89	11.02	16.54	8.23	5.60	4.10	71	189	263	
	10	2	1	20	128	19.10	8.37	8.42	16.31	8.07	5.48	3.98	17	47	66
			5	20	128	25.75	9.19	9.65	16.31	8.07	5.48	3.98	17	47	66
3		1	20	128	19.10	8.64	8.65	16.31	8.07	5.48	3.98	35	95	133	
		5	20	128	25.75	9.93	10.21	16.31	8.07	5.48	3.98	35	95	133	
4		1	20	128	19.10	8.79	8.77	16.31	8.07	5.48	3.98	53	143	200	
		5	20	128	25.75	10.43	10.61	16.31	8.07	5.48	3.98	53	143	200	
5		1	17	140	19.35	9.09	9.05	16.54	8.23	5.60	4.10	71	189	263	
		5	17	140	26.11	10.98	11.11	16.54	8.23	5.60	4.10	71	189	263	
20		2	1	20	128	19.72	8.46	8.56	16.31	8.07	5.48	3.98	17	47	66
			5	20	128	26.30	9.26	9.76	16.31	8.07	5.48	3.98	17	47	66
	3	1	20	128	19.72	8.81	8.84	16.31	8.07	5.48	3.98	35	95	133	
		5	20	128	26.30	10.05	10.35	16.31	8.07	5.48	3.98	35	95	133	
	4	1	20	128	19.72	8.98	8.99	16.31	8.07	5.48	3.98	53	143	200	
		5	20	128	26.30	10.57	10.78	16.31	8.07	5.48	3.98	53	143	200	
	5	1	17	140	19.99	9.32	9.30	16.54	8.23	5.60	4.10	71	189	263	
		5	17	140	26.67	11.15	11.30	16.54	8.23	5.60	4.10	71	189	263	
	40	2	1	20	128	20.98	8.66	8.85	16.31	8.07	5.48	3.98	17	47	66
			5	20	128	27.42	9.41	9.98	16.31	8.07	5.48	3.98	17	47	66
3		1	20	128	20.98	9.13	9.22	16.31	8.07	5.48	3.98	35	95	133	
		5	20	128	27.42	10.29	10.64	16.31	8.07	5.48	3.98	35	95	133	
4		1	20	128	20.98	9.37	9.42	16.31	8.07	5.48	3.98	53	143	200	
		5	20	128	27.42	10.87	11.11	16.31	8.07	5.48	3.98	53	143	200	
5		1	17	140	21.26	9.78	9.80	16.54	8.23	5.60	4.10	71	189	263	
		5	17	140	27.81	11.49	11.67	16.54	8.23	5.60	4.10	71	189	263	

400 CHARACTER DATA RECORD 80K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	15	98	22.01	10.75	10.76	21.75	10.77	7.31	5.31	13	35	50	
		5	15	98	28.38	11.58	12.00	21.75	10.77	7.31	5.31	13	35	50	
	3	1	15	98	22.01	10.99	10.96	21.75	10.77	7.31	5.31	26	71	100	
		5	15	98	28.38	12.30	12.55	21.75	10.77	7.31	5.31	26	71	100	
	4	1	15	98	22.01	11.12	11.07	21.75	10.77	7.31	5.31	40	107	150	
		5	15	98	28.38	12.78	12.94	21.75	10.77	7.31	5.31	40	107	150	
	5	1	12	108	22.38	11.52	11.46	22.19	11.06	7.53	5.53	53	141	196	
		5	12	108	28.86	13.45	13.55	22.19	11.06	7.53	5.53	53	141	196	
	10	2	1	15	98	22.31	10.80	10.83	21.75	10.77	7.31	5.31	13	35	50
			5	15	98	28.64	11.61	12.05	21.75	10.77	7.31	5.31	13	35	50
3		1	15	98	22.31	11.07	11.06	21.75	10.77	7.31	5.31	26	71	100	
		5	15	98	28.64	12.36	12.62	21.75	10.77	7.31	5.31	26	71	100	
4		1	15	98	22.31	11.22	11.18	21.75	10.77	7.31	5.31	40	107	150	
		5	15	98	28.64	12.86	13.02	21.75	10.77	7.31	5.31	40	107	150	
5		1	12	108	22.69	11.64	11.58	22.19	11.06	7.53	5.53	53	141	196	
		5	12	108	29.13	13.53	13.64	22.19	11.06	7.53	5.53	53	141	196	
20		2	1	15	98	22.91	10.89	10.97	21.75	10.77	7.31	5.31	13	35	50
			5	15	98	29.17	11.69	12.16	21.75	10.77	7.31	5.31	13	35	50
	3	1	15	98	22.91	11.23	11.25	21.75	10.77	7.31	5.31	26	71	100	
		5	15	98	29.17	12.48	12.76	21.75	10.77	7.31	5.31	26	71	100	
	4	1	15	98	22.91	11.41	11.39	21.75	10.77	7.31	5.31	40	107	150	
		5	15	98	29.17	13.00	13.18	21.75	10.77	7.31	5.31	40	107	150	
	5	1	12	108	23.30	11.87	11.83	22.19	11.06	7.53	5.53	53	141	196	
		5	12	108	29.68	13.70	13.82	22.19	11.06	7.53	5.53	53	141	196	
	40	2	1	15	98	24.11	11.09	11.26	21.75	10.77	7.31	5.31	13	35	50
			5	15	98	30.24	11.83	12.38	21.75	10.77	7.31	5.31	13	35	50
3		1	15	98	24.11	11.56	11.63	21.75	10.77	7.31	5.31	26	71	100	
		5	15	98	30.24	12.72	13.04	21.75	10.77	7.31	5.31	26	71	100	
4		1	15	98	24.11	11.80	11.82	21.75	10.77	7.31	5.31	40	107	150	
		5	15	98	30.24	13.30	13.51	21.75	10.77	7.31	5.31	40	107	150	
5		1	12	108	24.52	12.33	12.33	22.19	11.06	7.53	5.53	53	141	196	
		5	12	108	30.76	14.05	14.20	22.19	11.06	7.53	5.53	53	141	196	

500 CHARACTER DATA RECORD 80K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	12	78	25.29	13.18	13.16	27.19	13.46	9.13	6.63	10	28	40	
		5	12	78	31.38	14.01	14.40	27.19	13.46	9.13	6.63	10	28	40	
	3	1	12	78	25.29	13.42	13.37	27.19	13.46	9.13	6.63	21	57	80	
		5	12	78	31.38	14.73	14.95	27.19	13.46	9.13	6.63	21	57	80	
	4	1	12	78	25.29	13.55	13.48	27.19	13.46	9.13	6.63	32	86	120	
		5	12	78	31.38	15.21	15.34	27.19	13.46	9.13	6.63	32	86	120	
	5	1	10	86	25.66	13.95	13.86	27.63	13.75	9.36	6.86	42	113	157	
		5	10	86	31.87	15.87	15.95	27.63	13.75	9.36	6.86	42	113	157	
	10	2	1	12	78	25.58	13.23	13.23	27.19	13.46	9.13	6.63	10	28	40
			5	12	78	31.64	14.04	14.46	27.19	13.46	9.13	6.63	10	28	40
3		1	12	78	25.58	13.50	13.46	27.19	13.46	9.13	6.63	21	57	80	
		5	12	78	31.64	14.79	15.02	27.19	13.46	9.13	6.63	21	57	80	
4		1	12	78	25.58	13.65	13.58	27.19	13.46	9.13	6.63	32	86	120	
		5	12	78	31.64	15.29	15.43	27.19	13.46	9.13	6.63	32	86	120	
5		1	10	86	25.96	14.07	13.99	27.63	13.75	9.36	6.86	42	113	157	
		5	10	86	32.13	15.96	16.04	27.63	13.75	9.36	6.86	42	113	157	
20		2	1	12	78	26.16	13.32	13.38	27.19	13.46	9.13	6.63	10	28	40
			5	12	78	32.15	14.12	14.57	27.19	13.46	9.13	6.63	10	28	40
	3	1	12	78	26.16	13.66	13.65	27.19	13.46	9.13	6.63	21	57	80	
		5	12	78	32.15	14.91	15.17	27.19	13.46	9.13	6.63	21	57	80	
	4	1	12	78	26.16	13.84	13.80	27.19	13.46	9.13	6.63	32	86	120	
		5	12	78	32.15	15.43	15.59	27.19	13.46	9.13	6.63	32	86	120	
	5	1	10	86	26.54	14.30	14.24	27.63	13.75	9.36	6.86	42	113	157	
		5	10	86	32.65	16.13	16.23	27.63	13.75	9.36	6.86	42	113	157	
	40	2	1	12	78	27.31	13.52	13.66	27.19	13.46	9.13	6.63	10	28	40
			5	12	78	33.16	14.26	14.79	27.19	13.46	9.13	6.63	10	28	40
3		1	12	78	27.31	13.98	14.03	27.19	13.46	9.13	6.63	21	57	80	
		5	12	78	33.16	15.15	15.45	27.19	13.46	9.13	6.63	21	57	80	
4		1	12	78	27.31	14.23	14.23	27.19	13.46	9.13	6.63	32	86	120	
		5	12	78	33.16	15.72	15.92	27.19	13.46	9.13	6.63	32	86	120	
5		1	10	86	27.71	14.76	14.73	27.63	13.75	9.36	6.86	42	113	157	
		5	10	86	33.69	16.47	16.60	27.63	13.75	9.36	6.86	42	113	157	

750 CHARACTER DATA RECORD 80K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	8	52	33.72	19.25	19.17	40.78	20.19	13.70	9.95	7	19	26
		5	8	52	39.32	20.08	20.42	40.78	20.19	13.70	9.95	7	19	26
	3	1	8	52	33.72	19.50	19.38	40.78	20.19	13.70	9.95	14	38	53
		5	8	52	39.32	20.81	20.97	40.78	20.19	13.70	9.95	14	38	53
		8	52	33.72	19.63	19.49	40.78	20.19	13.70	9.95	21	57	80	
	4	1	8	52	39.32	21.29	21.36	40.78	20.19	13.70	9.95	21	57	80
		5	8	52	33.72	19.63	19.49	40.78	20.19	13.70	9.95	21	57	80
	5	1	6	60	34.51	20.41	20.27	41.88	20.92	14.27	10.52	28	74	103
		5	6	60	40.28	22.34	22.35	41.88	20.92	14.27	10.52	28	74	103
	10	2	1	8	52	33.98	19.30	19.25	40.78	20.19	13.70	9.95	7	19
5			8	52	39.55	20.12	20.47	40.78	20.19	13.70	9.95	7	19	26
3		1	8	52	33.98	19.58	19.47	40.78	20.19	13.70	9.95	14	38	53
		5	8	52	39.55	20.87	21.04	40.78	20.19	13.70	9.95	14	38	53
		8	52	33.98	19.72	19.60	40.78	20.19	13.70	9.95	21	57	80	
4		1	8	52	39.55	21.36	21.44	40.78	20.19	13.70	9.95	21	57	80
		5	8	52	33.98	19.72	19.60	40.78	20.19	13.70	9.95	21	57	80
5		1	6	60	34.78	20.53	20.39	41.88	20.92	14.27	10.52	28	74	103
		5	6	60	40.53	22.42	22.45	41.88	20.92	14.27	10.52	28	74	103
20		2	1	8	52	34.51	19.40	19.39	40.78	20.19	13.70	9.95	7	19
	5		8	52	40.02	20.19	20.58	40.78	20.19	13.70	9.95	7	19	26
	3	1	8	52	34.51	19.74	19.67	40.78	20.19	13.70	9.95	14	38	53
		5	8	52	40.02	20.98	21.18	40.78	20.19	13.70	9.95	14	38	53
		8	52	34.51	19.92	19.81	40.78	20.19	13.70	9.95	21	57	80	
	4	1	8	52	40.02	21.51	21.60	40.78	20.19	13.70	9.95	21	57	80
		5	8	52	34.51	19.92	19.81	40.78	20.19	13.70	9.95	21	57	80
	5	1	6	60	35.33	20.76	20.64	41.88	20.92	14.27	10.52	28	74	103
		5	6	60	41.01	22.59	22.63	41.88	20.92	14.27	10.52	28	74	103
	40	2	1	8	52	35.57	19.59	19.68	40.78	20.19	13.70	9.95	7	19
5			8	52	40.96	20.34	20.80	40.78	20.19	13.70	9.95	7	19	26
3		1	8	52	35.57	20.06	20.05	40.78	20.19	13.70	9.95	14	38	53
		5	8	52	40.96	21.22	21.46	40.78	20.19	13.70	9.95	14	38	53
		8	52	35.57	20.30	20.24	40.78	20.19	13.70	9.95	21	57	80	
4		1	8	52	40.96	21.80	21.93	40.78	20.19	13.70	9.95	21	57	80
		5	8	52	35.57	20.30	20.24	40.78	20.19	13.70	9.95	21	57	80
5		1	6	60	36.42	21.22	21.13	41.88	20.92	14.27	10.52	28	74	103
		5	6	60	41.97	22.94	23.00	41.88	20.92	14.27	10.52	28	74	103

1000 CHARACTER DATA RECORD 80K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	6	38	42.26	25.33	25.19	54.38	26.92	18.27	13.27	5	14	20
		5	6	38	47.48	26.15	26.43	54.38	26.92	18.27	13.27	5	14	20
	3	1	6	38	42.26	25.57	25.39	54.38	26.92	18.27	13.27	10	28	40
		5	6	38	47.48	26.88	26.98	54.38	26.92	18.27	13.27	10	28	40
		8	6	38	42.26	25.70	25.51	54.38	26.92	18.27	13.27	16	43	60
	4	1	6	38	47.48	27.36	27.37	54.38	26.92	18.27	13.27	16	43	60
		5	6	38	42.26	25.70	25.51	54.38	26.92	18.27	13.27	16	43	60
	5	1	5	42	42.88	26.36	26.15	55.26	27.51	18.73	13.73	21	56	78
		5	5	42	48.22	28.28	28.24	55.26	27.51	18.73	13.73	21	56	78
	10	2	1	6	38	42.51	25.37	25.26	54.38	26.92	18.27	13.27	5	14
5			6	38	47.70	26.19	26.49	54.38	26.92	18.27	13.27	5	14	20
3		1	6	38	42.51	25.65	25.49	54.38	26.92	18.27	13.27	10	28	40
		5	6	38	47.70	26.94	27.05	54.38	26.92	18.27	13.27	10	28	40
		8	6	38	42.51	25.80	25.61	54.38	26.92	18.27	13.27	16	43	60
4		1	6	38	47.70	27.43	27.45	54.38	26.92	18.27	13.27	16	43	60
		5	6	38	42.51	25.80	25.61	54.38	26.92	18.27	13.27	16	43	60
5		1	5	42	43.13	26.47	26.27	55.26	27.51	18.73	13.73	21	56	78
		5	5	42	48.44	28.37	28.33	55.26	27.51	18.73	13.73	21	56	78
20		2	1	6	38	43.01	25.47	25.40	54.38	26.92	18.27	13.27	5	14
	5		6	38	48.14	26.26	26.60	54.38	26.92	18.27	13.27	5	14	20
	3	1	6	38	43.01	25.81	25.68	54.38	26.92	18.27	13.27	10	28	40
		5	6	38	48.14	27.06	27.19	54.38	26.92	18.27	13.27	10	28	40
		8	6	38	43.01	25.99	25.83	54.38	26.92	18.27	13.27	16	43	60
	4	1	6	38	48.14	27.58	27.62	54.38	26.92	18.27	13.27	16	43	60
		5	6	38	43.01	25.99	25.83	54.38	26.92	18.27	13.27	16	43	60
	5	1	5	42	43.64	26.71	26.52	55.26	27.51	18.73	13.73	21	56	78
		5	5	42	48.89	28.54	28.52	55.26	27.51	18.73	13.73	21	56	78
	40	2	1	6	38	44.00	25.66	25.69	54.38	26.92	18.27	13.27	5	14
5			6	38	49.01	26.41	26.82	54.38	26.92	18.27	13.27	5	14	20
3		1	6	38	44.00	26.13	26.06	54.38	26.92	18.27	13.27	10	28	40
		5	6	38	49.01	27.29	27.48	54.38	26.92	18.27	13.27	10	28	40
		8	6	38	44.00	26.38	26.26	54.38	26.92	18.27	13.27	16	43	60
4		1	6	38	49.01	27.87	27.95	54.38	26.92	18.27	13.27	16	43	60
		5	6	38	44.00	26.38	26.26	54.38	26.92	18.27	13.27	16	43	60
5		1	5	42	44.65	27.17	27.02	55.26	27.51	18.73	13.73	21	56	78
		5	5	42	49.78	28.88	28.89	55.26	27.51	18.73	13.73	21	56	78

1500 CHARACTER DATA RECORD 80K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	4	26	59.68	37.47	37.22	81.57	40.38	27.41	19.91	3	9	13
		5	4	26	64.44	38.30	38.46	81.57	40.38	27.41	19.91	3	9	13
	3	1	4	26	59.68	37.72	37.42	81.57	40.38	27.41	19.91	7	19	26
		5	4	26	64.44	39.03	39.01	81.57	40.38	27.41	19.91	7	19	26
	4	1	4	26	59.68	37.85	37.53	81.57	40.38	27.41	19.91	10	28	40
		5	4	26	64.44	39.50	39.40	81.57	40.38	27.41	19.91	10	28	40
	5	1	3	30	61.08	39.28	38.95	83.76	41.85	28.55	21.05	14	37	51
		5	3	30	66.01	41.20	41.04	83.76	41.85	28.55	21.05	14	37	51
10	2	1	4	26	59.91	37.52	37.29	81.57	40.38	27.41	19.91	3	9	13
		5	4	26	64.64	38.34	38.51	81.57	40.38	27.41	19.91	3	9	13
	3	1	4	26	59.91	37.80	37.52	81.57	40.38	27.41	19.91	7	19	26
		5	4	26	64.64	39.08	39.08	81.57	40.38	27.41	19.91	7	19	26
	4	1	4	26	59.91	37.94	37.64	81.57	40.38	27.41	19.91	10	28	40
		5	4	26	64.64	39.58	39.48	81.57	40.38	27.41	19.91	10	28	40
	5	1	3	30	61.31	39.40	39.08	83.76	41.85	28.55	21.05	14	37	51
		5	3	30	66.22	41.29	41.14	83.76	41.85	28.55	21.05	14	37	51
20	2	1	4	26	60.36	37.62	37.43	81.57	40.38	27.41	19.91	3	9	13
		5	4	26	65.04	38.41	38.62	81.57	40.38	27.41	19.91	3	9	13
	3	1	4	26	60.36	37.96	37.71	81.57	40.38	27.41	19.91	7	19	26
		5	4	26	65.04	39.20	39.22	81.57	40.38	27.41	19.91	7	19	26
	4	1	4	26	60.36	38.14	37.85	81.57	40.38	27.41	19.91	10	28	40
		5	4	26	65.04	39.72	39.65	81.57	40.38	27.41	19.91	10	28	40
	5	1	3	30	61.78	39.63	39.33	83.76	41.85	28.55	21.05	14	37	51
		5	3	30	66.63	41.46	41.32	83.76	41.85	28.55	21.05	14	37	51
40	2	1	4	26	61.27	37.81	37.72	81.57	40.38	27.41	19.91	3	9	13
		5	4	26	65.84	38.56	38.84	81.57	40.38	27.41	19.91	3	9	13
	3	1	4	26	61.27	38.28	38.09	81.57	40.38	27.41	19.91	7	19	26
		5	4	26	65.84	39.44	39.50	81.57	40.38	27.41	19.91	7	19	26
	4	1	4	26	61.27	38.52	38.28	81.57	40.38	27.41	19.91	10	28	40
		5	4	26	65.84	40.02	39.97	81.57	40.38	27.41	19.91	10	28	40
	5	1	3	30	62.72	40.09	39.82	83.76	41.85	28.55	21.05	14	37	51
		5	3	30	67.46	41.80	41.69	83.76	41.85	28.55	21.05	14	37	51

2000 CHARACTER DATA RECORD 80K 1410

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	3	20	77.25	49.62	49.24	108.76	53.85	36.55	26.55	2	7	10
		5	3	20	81.70	50.45	50.49	108.76	53.85	36.55	26.55	2	7	10
	3	1	3	20	77.25	49.86	49.45	108.76	53.85	36.55	26.55	5	14	20
		5	3	20	81.70	51.17	51.04	108.76	53.85	36.55	26.55	5	14	20
	4	1	3	20	77.25	49.99	49.56	108.76	53.85	36.55	26.55	8	21	30
		5	3	20	81.70	51.65	51.43	108.76	53.85	36.55	26.55	8	21	30
	5	1	2	22	79.80	52.73	52.28	113.15	56.77	38.82	28.82	10	27	38
		5	2	22	84.36	54.65	54.37	113.15	56.77	38.82	28.82	10	27	38
10	2	1	3	20	77.46	49.66	49.32	108.76	53.85	36.55	26.55	2	7	10
		5	3	20	81.88	50.48	50.54	108.76	53.85	36.55	26.55	2	7	10
	3	1	3	20	77.46	49.94	49.54	108.76	53.85	36.55	26.55	5	14	20
		5	3	20	81.88	51.23	51.11	108.76	53.85	36.55	26.55	5	14	20
	4	1	3	20	77.46	50.09	49.67	108.76	53.85	36.55	26.55	8	21	30
		5	3	20	81.88	51.72	51.51	108.76	53.85	36.55	26.55	8	21	30
	5	1	2	22	80.02	52.84	52.40	113.15	56.77	38.82	28.82	10	27	38
		5	2	22	84.55	54.74	54.46	113.15	56.77	38.82	28.82	10	27	38
20	2	1	3	20	77.89	49.76	49.46	108.76	53.85	36.55	26.55	2	7	10
		5	3	20	82.26	50.56	50.65	108.76	53.85	36.55	26.55	2	7	10
	3	1	3	20	77.89	50.10	49.73	108.76	53.85	36.55	26.55	5	14	20
		5	3	20	82.26	51.35	51.25	108.76	53.85	36.55	26.55	5	14	20
	4	1	3	20	77.89	50.28	49.88	108.76	53.85	36.55	26.55	8	21	30
		5	3	20	82.26	51.87	51.67	108.76	53.85	36.55	26.55	8	21	30
	5	1	2	22	80.45	53.08	52.65	113.15	56.77	38.82	28.82	10	27	38
		5	2	22	84.93	54.91	54.64	113.15	56.77	38.82	28.82	10	27	38
40	2	1	3	20	78.74	49.95	49.74	108.76	53.85	36.55	26.55	2	7	10
		5	3	20	83.00	50.70	50.87	108.76	53.85	36.55	26.55	2	7	10
	3	1	3	20	78.74	50.42	50.12	108.76	53.85	36.55	26.55	5	14	20
		5	3	20	83.00	51.58	51.53	108.76	53.85	36.55	26.55	5	14	20
	4	1	3	20	78.74	50.67	50.31	108.76	53.85	36.55	26.55	8	21	30
		5	3	20	83.00	52.16	52.00	108.76	53.85	36.55	26.55	8	21	30
	5	1	2	22	81.33	53.54	53.15	113.15	56.77	38.82	28.82	10	27	38
		5	2	22	85.70	55.25	55.02	113.15	56.77	38.82	28.82	10	27	38

20 CHARACTER DATA RECORD 40K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	183	318	3.04	.45	.48	1.12	.55	.37	.27	265	688	948	
		5	183	318	5.33	.69	.85	1.12	.55	.37	.27	265	688	948	
	3	1	137	440	3.18	.53	.55	1.16	.57	.39	.29	523	1331	1811	
		5	137	440	5.59	.92	1.02	1.16	.57	.39	.29	523	1331	1811	
	4	1	110	512	3.25	.58	.60	1.20	.60	.40	.30	775	1935	2602	
		5	110	512	5.71	1.07	1.14	1.20	.60	.40	.30	775	1935	2602	
	5	1	91	564	3.30	.64	.65	1.24	.62	.42	.32	1019	2497	3321	
		5	91	564	5.79	1.20	1.26	1.24	.62	.42	.32	1019	2497	3321	
	10	2	1	183	318	3.16	.46	.50	1.12	.55	.37	.27	265	688	948
			5	183	318	5.43	.70	.86	1.12	.55	.37	.27	265	688	948
3		1	137	440	3.30	.56	.58	1.16	.57	.39	.29	523	1331	1811	
		5	137	440	5.69	.93	1.04	1.16	.57	.39	.29	523	1331	1811	
4		1	110	512	3.38	.61	.63	1.20	.60	.40	.30	775	1935	2602	
		5	110	512	5.82	1.09	1.17	1.20	.60	.40	.30	775	1935	2602	
5		1	91	564	3.43	.67	.69	1.24	.62	.42	.32	1019	2497	3321	
		5	91	564	5.90	1.23	1.29	1.24	.62	.42	.32	1019	2497	3321	

30 CHARACTER DATA RECORD 40K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	122	238	3.02	.52	.55	1.68	.83	.55	.40	176	459	632	
		5	122	238	5.21	.76	.92	1.68	.83	.55	.40	176	459	632	
	3	1	91	332	3.17	.60	.62	1.74	.86	.58	.43	348	887	1206	
		5	91	332	5.47	.99	1.09	1.74	.86	.58	.43	348	887	1206	
	4	1	73	386	3.24	.66	.67	1.80	.90	.61	.46	516	1289	1733	
		5	73	386	5.60	1.15	1.22	1.80	.90	.61	.46	516	1289	1733	
	5	1	61	422	3.29	.72	.73	1.86	.94	.63	.48	680	1666	2217	
		5	61	422	5.68	1.28	1.34	1.86	.94	.63	.48	680	1666	2217	
	10	2	1	122	238	3.13	.53	.57	1.68	.83	.55	.40	176	459	632
			5	122	238	5.30	.77	.93	1.68	.83	.55	.40	176	459	632
3		1	91	332	3.29	.63	.66	1.74	.86	.58	.43	348	887	1206	
		5	91	332	5.58	1.01	1.11	1.74	.86	.58	.43	348	887	1206	
4		1	73	386	3.36	.69	.71	1.80	.90	.61	.46	516	1289	1733	
		5	73	386	5.70	1.17	1.25	1.80	.90	.61	.46	516	1289	1733	
5		1	61	422	3.41	.75	.77	1.86	.94	.63	.48	680	1666	2217	
		5	61	422	5.79	1.31	1.37	1.86	.94	.63	.48	680	1666	2217	
20		2	1	122	238	3.36	.56	.62	1.68	.83	.55	.40	176	459	632
			5	122	238	5.50	.80	.97	1.68	.83	.55	.40	176	459	632
	3	1	91	332	3.52	.68	.72	1.74	.86	.58	.43	348	887	1206	
		5	91	332	5.78	1.05	1.16	1.74	.86	.58	.43	348	887	1206	
	4	1	73	386	3.61	.75	.78	1.80	.90	.61	.46	516	1289	1733	
		5	73	386	5.91	1.22	1.30	1.80	.90	.61	.46	516	1289	1733	
	5	1	61	422	3.66	.83	.85	1.86	.94	.63	.48	680	1666	2217	
		5	61	422	6.00	1.36	1.43	1.86	.94	.63	.48	680	1666	2217	

40 CHARACTER DATA RECORD 40K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	91	192	3.03	.59	.62	2.24	1.10	.74	.54	132	344	473	
		5	91	192	5.14	.83	.98	2.24	1.10	.74	.54	132	344	473	
	3	1	68	266	3.18	.68	.70	2.32	1.15	.78	.58	261	665	904	
		5	68	266	5.41	1.06	1.16	2.32	1.15	.78	.58	261	665	904	
	4	1	55	308	3.26	.74	.75	2.40	1.20	.81	.61	387	967	1301	
		5	55	308	5.53	1.22	1.30	2.40	1.20	.81	.61	387	967	1301	
	5	1	45	340	3.31	.80	.81	2.49	1.26	.85	.65	509	1245	1656	
		5	45	340	5.63	1.37	1.42	2.49	1.26	.85	.65	509	1245	1656	
	10	2	1	91	192	3.14	.60	.64	2.24	1.10	.74	.54	132	344	473
			5	91	192	5.24	.84	1.00	2.24	1.10	.74	.54	132	344	473
3		1	68	266	3.30	.70	.73	2.32	1.15	.78	.58	261	665	904	
		5	68	266	5.51	1.08	1.19	2.32	1.15	.78	.58	261	665	904	
4		1	55	308	3.37	.77	.79	2.40	1.20	.81	.61	387	967	1301	
		5	55	308	5.63	1.25	1.32	2.40	1.20	.81	.61	387	967	1301	
5		1	45	340	3.43	.84	.85	2.49	1.26	.85	.65	509	1245	1656	
		5	45	340	5.73	1.39	1.45	2.49	1.26	.85	.65	509	1245	1656	
20		2	1	91	192	3.36	.63	.69	2.24	1.10	.74	.54	132	344	473
			5	91	192	5.42	.87	1.04	2.24	1.10	.74	.54	132	344	473
	3	1	68	266	3.53	.76	.79	2.32	1.15	.78	.58	261	665	904	
		5	68	266	5.70	1.12	1.23	2.32	1.15	.78	.58	261	665	904	
	4	1	55	308	3.61	.83	.85	2.40	1.20	.81	.61	387	967	1301	
		5	55	308	5.84	1.29	1.38	2.40	1.20	.81	.61	387	967	1301	
	5	1	45	340	3.67	.91	.93	2.49	1.26	.85	.65	509	1245	1656	
		5	45	340	5.93	1.45	1.51	2.49	1.26	.85	.65	509	1245	1656	

50 CHARACTER DATA RECORD 40K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	73	160	3.06	.66	.69	2.80	1.38	.93	.68	106	275	379	
		5	73	160	5.10	.90	1.05	2.80	1.38	.93	.68	106	275	379	
	3	1	55	220	3.21	.75	.77	2.90	1.44	.97	.72	209	533	725	
		5	55	220	5.36	1.14	1.24	2.90	1.44	.97	.72	209	533	725	
		5	44	256	3.29	.82	.83	3.00	1.50	1.01	.76	310	774	1040	
	4	1	44	256	5.50	1.30	1.38	3.00	1.50	1.01	.76	310	774	1040	
		5	36	282	3.35	.88	.89	3.11	1.57	1.06	.81	407	996	1324	
	5	1	36	282	5.59	1.45	1.50	3.11	1.57	1.06	.81	407	996	1324	
		5	36	282	5.59	1.45	1.50	3.11	1.57	1.06	.81	407	996	1324	
	10	2	1	73	160	3.16	.67	.71	2.80	1.38	.93	.68	106	275	379
5			73	160	5.19	.91	1.07	2.80	1.38	.93	.68	106	275	379	
3		1	55	220	3.32	.78	.80	2.90	1.44	.97	.72	209	533	725	
		5	55	220	5.46	1.16	1.26	2.90	1.44	.97	.72	209	533	725	
4		1	44	256	3.40	.85	.86	3.00	1.50	1.01	.76	310	774	1040	
		5	44	256	5.60	1.33	1.40	3.00	1.50	1.01	.76	310	774	1040	
5		1	36	282	3.46	.92	.93	3.11	1.57	1.06	.81	407	996	1324	
		5	36	282	5.69	1.48	1.53	3.11	1.57	1.06	.81	407	996	1324	
20		2	1	73	160	3.37	.70	.76	2.80	1.38	.93	.68	106	275	379
			5	73	160	5.38	.94	1.11	2.80	1.38	.93	.68	106	275	379
	3	1	55	220	3.54	.83	.86	2.90	1.44	.97	.72	209	533	725	
		5	55	220	5.65	1.19	1.30	2.90	1.44	.97	.72	209	533	725	
	4	1	44	256	3.63	.91	.93	3.00	1.50	1.01	.76	310	774	1040	
		5	44	256	5.79	1.37	1.45	3.00	1.50	1.01	.76	310	774	1040	
	5	1	36	282	3.70	.99	1.01	3.11	1.57	1.06	.81	407	996	1324	
		5	36	282	5.89	1.53	1.59	3.11	1.57	1.06	.81	407	996	1324	
	40	2	1	73	160	3.80	.77	.85	2.80	1.38	.93	.68	106	275	379
			5	73	160	5.74	.98	1.17	2.80	1.38	.93	.68	106	275	379
3		1	55	220	3.99	.93	.99	2.90	1.44	.97	.72	209	533	725	
		5	55	220	6.04	1.27	1.39	2.90	1.44	.97	.72	209	533	725	
4		1	44	256	4.09	1.03	1.07	3.00	1.50	1.01	.76	310	774	1040	
		5	44	256	6.19	1.46	1.56	3.00	1.50	1.01	.76	310	774	1040	
5		1	36	282	4.16	1.14	1.17	3.11	1.57	1.06	.81	407	996	1324	
		5	36	282	6.29	1.64	1.71	3.11	1.57	1.06	.81	407	996	1324	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	61	136	3.09	.73	.76	3.36	1.66	1.11	.81	88	229	316	
		5	61	136	5.08	.97	1.12	3.36	1.66	1.11	.81	88	229	316	
	3	1	45	190	3.25	.83	.85	3.49	1.74	1.17	.87	174	443	602	
		5	45	190	5.36	1.21	1.31	3.49	1.74	1.17	.87	174	443	602	
	4	1	36	222	3.34	.90	.91	3.61	1.81	1.22	.92	258	643	864	
		5	36	222	5.50	1.38	1.45	3.61	1.81	1.22	.92	258	643	864	
	5	1	30	242	3.40	.97	.97	3.74	1.89	1.28	.98	339	830	1104	
		5	30	242	5.59	1.53	1.59	3.74	1.89	1.28	.98	339	830	1104	
	10	2	1	61	136	3.19	.74	.78	3.36	1.66	1.11	.81	88	229	316
			5	61	136	5.17	.98	1.14	3.36	1.66	1.11	.81	88	229	316
3		1	45	190	3.36	.85	.88	3.49	1.74	1.17	.87	174	443	602	
		5	45	190	5.45	1.23	1.33	3.49	1.74	1.17	.87	174	443	602	
4		1	36	222	3.45	.93	.94	3.61	1.81	1.22	.92	258	643	864	
		5	36	222	5.60	1.41	1.48	3.61	1.81	1.22	.92	258	643	864	
5		1	30	242	3.51	1.00	1.01	3.74	1.89	1.28	.98	339	830	1104	
		5	30	242	5.69	1.56	1.62	3.74	1.89	1.28	.98	339	830	1104	
20		2	1	61	136	3.40	.77	.83	3.36	1.66	1.11	.81	88	229	316
			5	61	136	5.34	1.01	1.17	3.36	1.66	1.11	.81	88	229	316
	3	1	45	190	3.58	.91	.94	3.49	1.74	1.17	.87	174	443	602	
		5	45	190	5.64	1.27	1.38	3.49	1.74	1.17	.87	174	443	602	
	4	1	36	222	3.67	.99	1.01	3.61	1.81	1.22	.92	258	643	864	
		5	36	222	5.79	1.45	1.53	3.61	1.81	1.22	.92	258	643	864	
	5	1	30	242	3.74	1.08	1.09	3.74	1.89	1.28	.98	339	830	1104	
		5	30	242	5.88	1.61	1.67	3.74	1.89	1.28	.98	339	830	1104	
	40	2	1	61	136	3.81	.84	.92	3.36	1.66	1.11	.81	88	229	316
			5	61	136	5.70	1.05	1.24	3.36	1.66	1.11	.81	88	229	316
3		1	45	190	4.01	1.01	1.06	3.49	1.74	1.17	.87	174	443	602	
		5	45	190	6.01	1.34	1.47	3.49	1.74	1.17	.87	174	443	602	
4		1	36	222	4.12	1.11	1.15	3.61	1.81	1.22	.92	258	643	864	
		5	36	222	6.17	1.54	1.64	3.61	1.81	1.22	.92	258	643	864	
5		1	30	242	4.19	1.22	1.25	3.74	1.89	1.28	.98	339	830	1104	
		5	30	242	6.27	1.72	1.79	3.74	1.89	1.28	.98	339	830	1104	



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CW LNG	MRG ORD	NO. CF				PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
			B	G		PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	52	120		3.14	.80	.83	3.92	1.94	1.30	.95	75	196	270	
		5	52	120		5.08	1.04	1.19	3.92	1.94	1.30	.95	75	196	270	
	3	1	39	166		3.30	.90	.92	4.07	2.02	1.36	1.01	149	380	517	
		5	39	166		5.36	1.29	1.38	4.07	2.02	1.36	1.01	149	380	517	
	4	1	31	194		3.39	.97	.98	4.21	2.11	1.43	1.08	221	551	741	
		5	31	194		5.50	1.46	1.53	4.21	2.11	1.43	1.08	221	551	741	
	5	1	26	210		3.45	1.05	1.05	4.35	2.20	1.49	1.14	291	713	948	
		5	26	210		5.59	1.61	1.67	4.35	2.20	1.49	1.14	291	713	948	
	10	2	1	52	120		3.24	.81	.85	3.92	1.94	1.30	.95	75	196	270
			5	52	120		5.17	1.05	1.21	3.92	1.94	1.30	.95	75	196	270
3		1	39	166		3.40	.93	.95	4.07	2.02	1.36	1.01	149	380	517	
		5	39	166		5.45	1.30	1.41	4.07	2.02	1.36	1.01	149	380	517	
4		1	31	194		3.50	1.00	1.02	4.21	2.11	1.43	1.08	221	551	741	
		5	31	194		5.60	1.48	1.56	4.21	2.11	1.43	1.08	221	551	741	
5		1	26	210		3.56	1.08	1.09	4.35	2.20	1.49	1.14	291	713	948	
		5	26	210		5.68	1.64	1.69	4.35	2.20	1.49	1.14	291	713	948	
20		2	1	52	120		3.44	.84	.90	3.92	1.94	1.30	.95	75	196	270
			5	52	120		5.34	1.08	1.24	3.92	1.94	1.30	.95	75	196	270
	3	1	39	166		3.62	.98	1.01	4.07	2.02	1.36	1.01	149	380	517	
		5	39	166		5.63	1.34	1.45	4.07	2.02	1.36	1.01	149	380	517	
	4	1	31	194		3.72	1.07	1.09	4.21	2.11	1.43	1.08	221	551	741	
		5	31	194		5.79	1.53	1.61	4.21	2.11	1.43	1.08	221	551	741	
	5	1	26	210		3.78	1.16	1.17	4.35	2.20	1.49	1.14	291	713	948	
		5	26	210		5.88	1.69	1.75	4.35	2.20	1.49	1.14	291	713	948	
	40	2	1	52	120		3.84	.91	.99	3.92	1.94	1.30	.95	75	196	270
			5	52	120		5.69	1.12	1.31	3.92	1.94	1.30	.95	75	196	270
3		1	39	166		4.04	1.08	1.13	4.07	2.02	1.36	1.01	149	380	517	
		5	39	166		6.00	1.42	1.54	4.07	2.02	1.36	1.01	149	380	517	
4		1	31	194		4.15	1.19	1.23	4.21	2.11	1.43	1.08	221	551	741	
		5	31	194		6.16	1.62	1.71	4.21	2.11	1.43	1.08	221	551	741	
5		1	26	210		4.22	1.31	1.33	4.35	2.20	1.49	1.14	291	713	948	
		5	26	210		6.26	1.80	1.87	4.35	2.20	1.49	1.14	291	713	948	

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CW LNG	MRG ORD	NO. CF				PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
			B	G		PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	45	108		3.20	.87	.90	4.49	2.22	1.49	1.09	66	171	236	
		5	45	108		5.10	1.11	1.26	4.49	2.22	1.49	1.09	66	171	236	
	3	1	34	148		3.35	.98	.99	4.65	2.31	1.56	1.16	130	332	452	
		5	34	148		5.37	1.36	1.46	4.65	2.31	1.56	1.16	130	332	452	
	4	1	27	172		3.45	1.05	1.06	4.82	2.42	1.63	1.23	193	482	648	
		5	27	172		5.52	1.54	1.61	4.82	2.42	1.63	1.23	193	482	648	
	5	1	22	190		3.52	1.14	1.14	5.01	2.53	1.71	1.31	254	620	823	
		5	22	190		5.63	1.70	1.75	5.01	2.53	1.71	1.31	254	620	823	
	10	2	1	45	108		3.29	.89	.92	4.49	2.22	1.49	1.09	66	171	236
			5	45	108		5.19	1.12	1.28	4.49	2.22	1.49	1.09	66	171	236
3		1	34	148		3.46	1.00	1.02	4.65	2.31	1.56	1.16	130	332	452	
		5	34	148		5.46	1.38	1.48	4.65	2.31	1.56	1.16	130	332	452	
4		1	27	172		3.56	1.08	1.10	4.82	2.42	1.63	1.23	193	482	648	
		5	27	172		5.61	1.56	1.64	4.82	2.42	1.63	1.23	193	482	648	
5		1	22	190		3.63	1.17	1.18	5.01	2.53	1.71	1.31	254	620	823	
		5	22	190		5.72	1.73	1.78	5.01	2.53	1.71	1.31	254	620	823	
20		2	1	45	108		3.49	.92	.97	4.49	2.22	1.49	1.09	66	171	236
			5	45	108		5.36	1.15	1.31	4.49	2.22	1.49	1.09	66	171	236
	3	1	34	148		3.67	1.05	1.08	4.65	2.31	1.56	1.16	130	332	452	
		5	34	148		5.64	1.42	1.52	4.65	2.31	1.56	1.16	130	332	452	
	4	1	27	172		3.77	1.15	1.17	4.82	2.42	1.63	1.23	193	482	648	
		5	27	172		5.80	1.61	1.69	4.82	2.42	1.63	1.23	193	482	648	
	5	1	22	190		3.85	1.25	1.26	5.01	2.53	1.71	1.31	254	620	823	
		5	22	190		5.91	1.78	1.84	5.01	2.53	1.71	1.31	254	620	823	
	40	2	1	45	108		3.89	.98	1.06	4.49	2.22	1.49	1.09	66	171	236
			5	45	108		5.70	1.19	1.38	4.49	2.22	1.49	1.09	66	171	236
3		1	34	148		4.08	1.16	1.21	4.65	2.31	1.56	1.16	130	332	452	
		5	34	148		6.00	1.49	1.61	4.65	2.31	1.56	1.16	130	332	452	
4		1	27	172		4.20	1.27	1.30	4.82	2.42	1.63	1.23	193	482	648	
		5	27	172		6.16	1.70	1.79	4.82	2.42	1.63	1.23	193	482	648	
5		1	22	190		4.28	1.39	1.42	5.01	2.53	1.71	1.31	254	620	823	
		5	22	190		6.29	1.89	1.96	5.01	2.53	1.71	1.31	254	620	823	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	40	98	3.26	.94	.97	5.05	2.49	1.68	1.23	58	152	210	
		5	40	98	5.13	1.18	1.33	5.05	2.49	1.68	1.23	58	152	210	
	3	1	30	134	3.42	1.05	1.07	5.24	2.61	1.76	1.31	116	295	401	
		5	30	134	5.40	1.44	1.53	5.24	2.61	1.76	1.31	116	295	401	
	4	1	24	154	3.51	1.13	1.14	5.42	2.72	1.84	1.39	172	428	576	
		5	24	154	5.54	1.62	1.69	5.42	2.72	1.84	1.39	172	428	576	
	5	1	20	170	3.59	1.21	1.22	5.61	2.83	1.92	1.47	226	553	736	
		5	20	170	5.65	1.78	1.83	5.61	2.83	1.92	1.47	226	553	736	
	10	2	1	40	98	3.35	.96	.99	5.05	2.49	1.68	1.23	58	152	210
			5	40	98	5.21	1.19	1.35	5.05	2.49	1.68	1.23	58	152	210
3		1	30	134	3.52	1.08	1.10	5.24	2.61	1.76	1.31	116	295	401	
		5	30	134	5.49	1.45	1.55	5.24	2.61	1.76	1.31	116	295	401	
4		1	24	154	3.62	1.16	1.17	5.42	2.72	1.84	1.39	172	428	576	
		5	24	154	5.63	1.64	1.71	5.42	2.72	1.84	1.39	172	428	576	
5		1	20	170	3.69	1.25	1.26	5.61	2.83	1.92	1.47	226	553	736	
		5	20	170	5.74	1.81	1.86	5.61	2.83	1.92	1.47	226	553	736	
20		2	1	40	98	3.55	.99	1.04	5.05	2.49	1.68	1.23	58	152	210
			5	40	98	5.38	1.22	1.38	5.05	2.49	1.68	1.23	58	152	210
	3	1	30	134	3.73	1.13	1.16	5.24	2.61	1.76	1.31	116	295	401	
		5	30	134	5.67	1.49	1.60	5.24	2.61	1.76	1.31	116	295	401	
	4	1	24	154	3.83	1.22	1.24	5.42	2.72	1.84	1.39	172	428	576	
		5	24	154	5.81	1.69	1.76	5.42	2.72	1.84	1.39	172	428	576	
	5	1	20	170	3.91	1.32	1.34	5.61	2.83	1.92	1.47	226	553	736	
		5	20	170	5.93	1.86	1.92	5.61	2.83	1.92	1.47	226	553	736	
	40	2	1	40	98	3.93	1.05	1.13	5.05	2.49	1.68	1.23	58	152	210
			5	40	98	5.71	1.26	1.45	5.05	2.49	1.68	1.23	58	152	210
3		1	30	134	4.14	1.23	1.28	5.24	2.61	1.76	1.31	116	295	401	
		5	30	134	6.02	1.57	1.69	5.24	2.61	1.76	1.31	116	295	401	
4		1	24	154	4.24	1.35	1.38	5.42	2.72	1.84	1.39	172	428	576	
		5	24	154	6.17	1.78	1.87	5.42	2.72	1.84	1.39	172	428	576	
5		1	20	170	4.33	1.47	1.50	5.61	2.83	1.92	1.47	226	553	736	
		5	20	170	6.30	1.97	2.03	5.61	2.83	1.92	1.47	226	553	736	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	36	88	3.31	1.01	1.04	5.61	2.77	1.86	1.36	52	137	189	
		5	36	88	5.14	1.25	1.40	5.61	2.77	1.86	1.36	52	137	189	
	3	1	27	120	3.48	1.13	1.14	5.82	2.90	1.95	1.45	104	265	361	
		5	27	120	5.42	1.51	1.61	5.82	2.90	1.95	1.45	104	265	361	
	4	1	22	140	3.58	1.21	1.21	6.01	3.01	2.03	1.53	155	387	520	
		5	22	140	5.57	1.69	1.76	6.01	3.01	2.03	1.53	155	387	520	
	5	1	18	154	3.66	1.30	1.30	6.23	3.15	2.13	1.63	203	498	662	
		5	18	154	5.69	1.86	1.91	6.23	3.15	2.13	1.63	203	498	662	
	10	2	1	36	88	3.41	1.03	1.06	5.61	2.77	1.86	1.36	52	137	189
			5	36	88	5.23	1.26	1.42	5.61	2.77	1.86	1.36	52	137	189
3		1	27	120	3.58	1.15	1.17	5.82	2.90	1.95	1.45	104	265	361	
		5	27	120	5.51	1.53	1.63	5.82	2.90	1.95	1.45	104	265	361	
4		1	22	140	3.68	1.24	1.25	6.01	3.01	2.03	1.53	155	387	520	
		5	22	140	5.66	1.72	1.79	6.01	3.01	2.03	1.53	155	387	520	
5		1	18	154	3.76	1.33	1.34	6.23	3.15	2.13	1.63	203	498	662	
		5	18	154	5.78	1.89	1.94	6.23	3.15	2.13	1.63	203	498	662	
20		2	1	36	88	3.60	1.06	1.11	5.61	2.77	1.86	1.36	52	137	189
			5	36	88	5.39	1.29	1.45	5.61	2.77	1.86	1.36	52	137	189
	3	1	27	120	3.78	1.20	1.23	5.82	2.90	1.95	1.45	104	265	361	
		5	27	120	5.68	1.57	1.67	5.82	2.90	1.95	1.45	104	265	361	
	4	1	22	140	3.88	1.30	1.32	6.01	3.01	2.03	1.53	155	387	520	
		5	22	140	5.84	1.76	1.84	6.01	3.01	2.03	1.53	155	387	520	
	5	1	18	154	3.97	1.41	1.42	6.23	3.15	2.13	1.63	203	498	662	
		5	18	154	5.96	1.94	2.00	6.23	3.15	2.13	1.63	203	498	662	
	40	2	1	36	88	3.98	1.12	1.20	5.61	2.77	1.86	1.36	52	137	189
			5	36	88	5.72	1.33	1.52	5.61	2.77	1.86	1.36	52	137	189
3		1	27	120	4.18	1.31	1.36	5.82	2.90	1.95	1.45	104	265	361	
		5	27	120	6.03	1.64	1.76	5.82	2.90	1.95	1.45	104	265	361	
4		1	22	140	4.30	1.42	1.46	6.01	3.01	2.03	1.53	155	387	520	
		5	22	140	6.20	1.85	1.94	6.01	3.01	2.03	1.53	155	387	520	
5		1	18	154	4.39	1.56	1.58	6.23	3.15	2.13	1.63	203	498	662	
		5	18	154	6.32	2.05	2.12	6.23	3.15	2.13	1.63	203	498	662	

120 CHARACTER DATA RECORD 40K 7010

CW LNG	MRG ORD	NO. CF			PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	30	74	3.44	1.15	1.17	6.74	3.33	2.24	1.64	44	114	157	
		5	30	74	5.21	1.39	1.54	6.74	3.33	2.24	1.64	44	114	157	
	3	1	22	104	3.63	1.28	1.29	7.01	3.49	2.35	1.75	87	220	299	
		5	22	104	5.52	1.66	1.76	7.01	3.49	2.35	1.75	87	220	299	
	4	1	18	118	3.72	1.37	1.37	7.23	3.63	2.45	1.85	129	321	432	
		5	18	118	5.66	1.85	1.92	7.23	3.63	2.45	1.85	129	321	432	
	5	1	15	130	3.81	1.46	1.46	7.48	3.78	2.56	1.96	169	415	552	
		5	15	130	5.78	2.03	2.07	7.48	3.78	2.56	1.96	169	415	552	
	10	2	1	30	74	3.53	1.17	1.20	6.74	3.33	2.24	1.64	44	114	157
			5	30	74	5.29	1.41	1.56	6.74	3.33	2.24	1.64	44	114	157
3		1	22	104	3.73	1.30	1.32	7.01	3.49	2.35	1.75	87	220	299	
		5	22	104	5.61	1.68	1.78	7.01	3.49	2.35	1.75	87	220	299	
4		1	18	118	3.82	1.40	1.41	7.23	3.63	2.45	1.85	129	321	432	
		5	18	118	5.75	1.88	1.95	7.23	3.63	2.45	1.85	129	321	432	
5		1	15	130	3.91	1.50	1.50	7.48	3.78	2.56	1.96	169	415	552	
		5	15	130	5.87	2.05	2.10	7.48	3.78	2.56	1.96	169	415	552	
20		2	1	30	74	3.72	1.20	1.24	6.74	3.33	2.24	1.64	44	114	157
			5	30	74	5.45	1.43	1.59	6.74	3.33	2.24	1.64	44	114	157
	3	1	22	104	3.92	1.36	1.38	7.01	3.49	2.35	1.75	87	220	299	
		5	22	104	5.77	1.72	1.82	7.01	3.49	2.35	1.75	87	220	299	
	4	1	18	118	4.02	1.46	1.48	7.23	3.63	2.45	1.85	129	321	432	
		5	18	118	5.92	1.92	2.00	7.23	3.63	2.45	1.85	129	321	432	
	5	1	15	130	4.12	1.57	1.58	7.48	3.78	2.56	1.96	169	415	552	
		5	15	130	6.04	2.11	2.16	7.48	3.78	2.56	1.96	169	415	552	
	40	2	1	30	74	4.08	1.26	1.34	6.74	3.33	2.24	1.64	44	114	157
			5	30	74	5.76	1.47	1.66	6.74	3.33	2.24	1.64	44	114	157
3		1	22	104	4.32	1.46	1.51	7.01	3.49	2.35	1.75	87	220	299	
		5	22	104	6.11	1.79	1.91	7.01	3.49	2.35	1.75	87	220	299	
4		1	18	118	4.42	1.58	1.61	7.23	3.63	2.45	1.85	129	321	432	
		5	18	118	6.26	2.01	2.10	7.23	3.63	2.45	1.85	129	321	432	
5		1	15	130	4.52	1.72	1.74	7.48	3.78	2.56	1.96	169	415	552	
		5	15	130	6.40	2.22	2.28	7.48	3.78	2.56	1.96	169	415	552	

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CW LNG	MRG ORD	NO. CF			PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	26	64	3.58	1.29	1.31	7.85	3.88	2.61	1.91	37	98	135	
		5	26	64	5.30	1.53	1.68	7.85	3.88	2.61	1.91	37	98	135	
	3	1	19	90	3.78	1.43	1.44	8.17	4.07	2.74	2.04	74	189	257	
		5	19	90	5.62	1.81	1.90	8.17	4.07	2.74	2.04	74	189	257	
	4	1	15	104	3.89	1.53	1.53	8.48	4.26	2.88	2.18	110	274	368	
		5	15	104	5.79	2.02	2.08	8.48	4.26	2.88	2.18	110	274	368	
	5	1	13	112	3.97	1.62	1.62	8.71	4.40	2.98	2.28	145	356	474	
		5	13	112	5.89	2.19	2.23	8.71	4.40	2.98	2.28	145	356	474	
	10	2	1	26	64	3.67	1.30	1.33	7.85	3.88	2.61	1.91	37	98	135
			5	26	64	5.37	1.54	1.69	7.85	3.88	2.61	1.91	37	98	135
3		1	19	90	3.87	1.45	1.47	8.17	4.07	2.74	2.04	74	189	257	
		5	19	90	5.70	1.83	1.92	8.17	4.07	2.74	2.04	74	189	257	
4		1	15	104	3.99	1.56	1.57	8.48	4.26	2.88	2.18	110	274	368	
		5	15	104	5.87	2.04	2.11	8.48	4.26	2.88	2.18	110	274	368	
5		1	13	112	4.07	1.66	1.66	8.71	4.40	2.98	2.28	145	356	474	
		5	13	112	5.97	2.22	2.26	8.71	4.40	2.98	2.28	145	356	474	
20		2	1	26	64	3.85	1.33	1.38	7.85	3.88	2.61	1.91	37	98	135
			5	26	64	5.53	1.57	1.73	7.85	3.88	2.61	1.91	37	98	135
	3	1	19	90	4.06	1.50	1.53	8.17	4.07	2.74	2.04	74	189	257	
		5	19	90	5.86	1.87	1.97	8.17	4.07	2.74	2.04	74	189	257	
	4	1	15	104	4.19	1.62	1.64	8.48	4.26	2.88	2.18	110	274	368	
		5	15	104	6.04	2.09	2.16	8.48	4.26	2.88	2.18	110	274	368	
	5	1	13	112	4.27	1.73	1.74	8.71	4.40	2.98	2.28	145	356	474	
		5	13	112	6.14	2.27	2.32	8.71	4.40	2.98	2.28	145	356	474	
	40	2	1	26	64	4.20	1.40	1.47	7.85	3.88	2.61	1.91	37	98	135
			5	26	64	5.83	1.61	1.80	7.85	3.88	2.61	1.91	37	98	135
3		1	19	90	4.44	1.61	1.65	8.17	4.07	2.74	2.04	74	189	257	
		5	19	90	6.19	1.94	2.06	8.17	4.07	2.74	2.04	74	189	257	
4		1	15	104	4.58	1.75	1.78	8.48	4.26	2.88	2.18	110	274	368	
		5	15	104	6.38	2.18	2.26	8.48	4.26	2.88	2.18	110	274	368	
5		1	13	112	4.66	1.88	1.90	8.71	4.40	2.98	2.28	145	356	474	
		5	13	112	6.48	2.38	2.44	8.71	4.40	2.98	2.28	145	356	474	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	22	58	3.74	1.44	1.46	9.01	4.45	2.99	2.19	33	85	117	
		5	22	58	5.43	1.68	1.82	9.01	4.45	2.99	2.19	33	85	117	
	3	1	17	78	3.92	1.57	1.58	9.31	4.63	3.12	2.32	65	166	226	
		5	17	78	5.71	1.95	2.04	9.31	4.63	3.12	2.32	65	166	226	
	4	1	13	92	4.06	1.69	1.69	9.71	4.88	3.30	2.50	96	239	321	
		5	13	92	5.91	2.18	2.24	9.71	4.88	3.30	2.50	96	239	321	
	5	1	11	100	4.16	1.80	1.80	10.02	5.07	3.43	2.63	127	310	411	
		5	11	100	6.03	2.37	2.41	10.02	5.07	3.43	2.63	127	310	411	
	10	2	1	22	58	3.83	1.45	1.48	9.01	4.45	2.99	2.19	33	85	117
			5	22	58	5.50	1.69	1.84	9.01	4.45	2.99	2.19	33	85	117
3		1	17	78	4.01	1.59	1.61	9.31	4.63	3.12	2.32	65	166	226	
		5	17	78	5.79	1.97	2.07	9.31	4.63	3.12	2.32	65	166	226	
4		1	13	92	4.16	1.72	1.73	9.71	4.88	3.30	2.50	96	239	321	
		5	13	92	5.99	2.20	2.27	9.71	4.88	3.30	2.50	96	239	321	
5		1	11	100	4.25	1.84	1.84	10.02	5.07	3.43	2.63	127	310	411	
		5	11	100	6.12	2.39	2.44	10.02	5.07	3.43	2.63	127	310	411	
20		2	1	22	58	4.01	1.48	1.53	9.01	4.45	2.99	2.19	33	85	117
			5	22	58	5.65	1.71	1.87	9.01	4.45	2.99	2.19	33	85	117
	3	1	17	78	4.20	1.65	1.67	9.31	4.63	3.12	2.32	65	166	226	
		5	17	78	5.95	2.01	2.11	9.31	4.63	3.12	2.32	65	166	226	
	4	1	13	92	4.35	1.79	1.80	9.71	4.88	3.30	2.50	96	239	321	
		5	13	92	6.16	2.25	2.32	9.71	4.88	3.30	2.50	96	239	321	
	5	1	11	100	4.45	1.91	1.92	10.02	5.07	3.43	2.63	127	310	411	
		5	11	100	6.28	2.45	2.50	10.02	5.07	3.43	2.63	127	310	411	
	40	2	1	22	58	4.36	1.54	1.62	9.01	4.45	2.99	2.19	33	85	117
			5	22	58	5.95	1.76	1.94	9.01	4.45	2.99	2.19	33	85	117
3		1	17	78	4.57	1.75	1.79	9.31	4.63	3.12	2.32	65	166	226	
		5	17	78	6.27	2.08	2.20	9.31	4.63	3.12	2.32	65	166	226	
4		1	13	92	4.73	1.91	1.94	9.71	4.88	3.30	2.50	96	239	321	
		5	13	92	6.49	2.34	2.42	9.71	4.88	3.30	2.50	96	239	321	
5		1	11	100	4.84	2.06	2.08	10.02	5.07	3.43	2.63	127	310	411	
		5	11	100	6.62	2.56	2.61	10.02	5.07	3.43	2.63	127	310	411	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	20	50	3.88	1.57	1.59	10.11	4.99	3.36	2.46	29	76	105	
		5	20	50	5.51	1.81	1.96	10.11	4.99	3.36	2.46	29	76	105	
	3	1	15	70	4.08	1.72	1.73	10.48	5.22	3.52	2.62	58	147	200	
		5	15	70	5.84	2.10	2.19	10.48	5.22	3.52	2.62	58	147	200	
	4	1	12	80	4.21	1.84	1.84	10.85	5.44	3.68	2.78	86	214	288	
		5	12	80	6.01	2.33	2.38	10.85	5.44	3.68	2.78	86	214	288	
	5	1	10	88	4.32	1.96	1.95	11.23	5.67	3.84	2.94	113	276	368	
		5	10	88	6.15	2.52	2.56	11.23	5.67	3.84	2.94	113	276	368	
	10	2	1	20	50	3.96	1.59	1.61	10.11	4.99	3.36	2.46	29	76	105
			5	20	50	5.58	1.83	1.97	10.11	4.99	3.36	2.46	29	76	105
3		1	15	70	4.18	1.75	1.76	10.48	5.22	3.52	2.62	58	147	200	
		5	15	70	5.91	2.12	2.21	10.48	5.22	3.52	2.62	58	147	200	
4		1	12	80	4.30	1.87	1.87	10.85	5.44	3.68	2.78	86	214	288	
		5	12	80	6.09	2.35	2.41	10.85	5.44	3.68	2.78	86	214	288	
5		1	10	88	4.41	2.00	1.99	11.23	5.67	3.84	2.94	113	276	368	
		5	10	88	6.23	2.55	2.59	11.23	5.67	3.84	2.94	113	276	368	
20		2	1	20	50	4.13	1.62	1.66	10.11	4.99	3.36	2.46	29	76	105
			5	20	50	5.73	1.85	2.01	10.11	4.99	3.36	2.46	29	76	105
	3	1	15	70	4.36	1.80	1.82	10.48	5.22	3.52	2.62	58	147	200	
		5	15	70	6.07	2.16	2.26	10.48	5.22	3.52	2.62	58	147	200	
	4	1	12	80	4.49	1.93	1.94	10.85	5.44	3.68	2.78	86	214	288	
		5	12	80	6.25	2.39	2.46	10.85	5.44	3.68	2.78	86	214	288	
	5	1	10	88	4.60	2.07	2.07	11.23	5.67	3.84	2.94	113	276	368	
		5	10	88	6.40	2.60	2.65	11.23	5.67	3.84	2.94	113	276	368	
	40	2	1	20	50	4.47	1.68	1.75	10.11	4.99	3.36	2.46	29	76	105
			5	20	50	6.02	1.89	2.08	10.11	4.99	3.36	2.46	29	76	105
3		1	15	70	4.72	1.90	1.94	10.48	5.22	3.52	2.62	58	147	200	
		5	15	70	6.38	2.23	2.35	10.48	5.22	3.52	2.62	58	147	200	
4		1	12	80	4.86	2.05	2.08	10.85	5.44	3.68	2.78	86	214	288	
		5	12	80	6.57	2.49	2.56	10.85	5.44	3.68	2.78	86	214	288	
5		1	10	88	4.98	2.22	2.23	11.23	5.67	3.84	2.94	113	276	368	
		5	10	88	6.72	2.71	2.77	11.23	5.67	3.84	2.94	113	276	368	

200 CHARACTER DATA RECORD 40K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	18	46	4.04	1.71	1.73	11.23	5.55	3.73	2.73	26	68	94	
		5	18	46	5.65	1.95	2.09	11.23	5.55	3.73	2.73	26	68	94	
		1	13	64	4.27	1.88	1.89	11.71	5.84	3.94	2.94	52	132	179	
	3	5	13	64	5.99	2.27	2.35	11.71	5.84	3.94	2.94	52	132	179	
		1	11	72	4.37	1.99	1.98	12.02	6.03	4.07	3.07	77	193	260	
		5	11	72	6.14	2.47	2.53	12.02	6.03	4.07	3.07	77	193	260	
	4	1	9	80	4.50	2.12	2.11	12.47	6.30	4.27	3.27	101	249	331	
		5	9	80	6.30	2.69	2.73	12.47	6.30	4.27	3.27	101	249	331	
		1	18	46	4.13	1.73	1.75	11.23	5.55	3.73	2.73	26	68	94	
	10	2	5	18	46	5.72	1.97	2.11	11.23	5.55	3.73	2.73	26	68	94
			1	13	64	4.36	1.91	1.92	11.71	5.84	3.94	2.94	52	132	179
			5	13	64	6.06	2.28	2.37	11.71	5.84	3.94	2.94	52	132	179
		3	1	11	72	4.46	2.02	2.02	12.02	6.03	4.07	3.07	77	193	260
			5	11	72	6.21	2.50	2.56	12.02	6.03	4.07	3.07	77	193	260
			1	9	80	4.59	2.16	2.15	12.47	6.30	4.27	3.27	101	249	331
4		5	9	80	6.38	2.72	2.76	12.47	6.30	4.27	3.27	101	249	331	
		1	18	46	4.29	1.76	1.80	11.23	5.55	3.73	2.73	26	68	94	
		5	18	46	5.86	1.99	2.15	11.23	5.55	3.73	2.73	26	68	94	
20		3	1	13	64	4.54	1.96	1.98	11.71	5.84	3.94	2.94	52	132	179
			5	13	64	6.22	2.32	2.42	11.71	5.84	3.94	2.94	52	132	179
			1	11	72	4.65	2.08	2.09	12.02	6.03	4.07	3.07	77	193	260
		4	5	11	72	6.37	2.54	2.61	12.02	6.03	4.07	3.07	77	193	260
			1	9	80	4.78	2.23	2.23	12.47	6.30	4.27	3.27	101	249	331
			5	9	80	6.54	2.77	2.81	12.47	6.30	4.27	3.27	101	249	331
	40	2	1	18	46	4.63	1.82	1.89	11.23	5.55	3.73	2.73	26	68	94
			5	18	46	6.15	2.04	2.22	11.23	5.55	3.73	2.73	26	68	94
			1	13	64	4.89	2.06	2.10	11.71	5.84	3.94	2.94	52	132	179
		3	5	13	64	6.52	2.40	2.51	11.71	5.84	3.94	2.94	52	132	179
			1	11	72	5.01	2.20	2.23	12.02	6.03	4.07	3.07	77	193	260
			5	11	72	6.68	2.64	2.71	12.02	6.03	4.07	3.07	77	193	260
		4	1	9	80	5.15	2.38	2.39	12.47	6.30	4.27	3.27	101	249	331
			5	9	80	6.86	2.88	2.93	12.47	6.30	4.27	3.27	101	249	331

220 CHARACTER DATA RECORD 40K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	16	44	4.23	1.86	1.87	12.39	6.12	4.12	3.02	24	62	85	
		5	16	44	5.82	2.10	2.24	12.39	6.12	4.12	3.02	24	62	85	
		1	12	58	4.43	2.03	2.03	12.85	6.40	4.32	3.22	47	120	163	
	3	5	12	58	6.11	2.41	2.49	12.85	6.40	4.32	3.22	47	120	163	
		1	10	66	4.55	2.14	2.14	13.23	6.63	4.48	3.38	70	175	236	
		5	10	66	6.28	2.63	2.69	13.23	6.63	4.48	3.38	70	175	236	
	4	1	8	74	4.70	2.30	2.29	13.78	6.97	4.72	3.62	92	225	299	
		5	8	74	6.47	2.87	2.90	13.78	6.97	4.72	3.62	92	225	299	
		1	16	44	4.31	1.87	1.90	12.39	6.12	4.12	3.02	24	62	85	
	10	2	5	16	44	5.89	2.11	2.26	12.39	6.12	4.12	3.02	24	62	85
			1	12	58	4.52	2.05	2.06	12.85	6.40	4.32	3.22	47	120	163
			5	12	58	6.19	2.43	2.52	12.85	6.40	4.32	3.22	47	120	163
		3	1	10	66	4.64	2.17	2.17	13.23	6.63	4.48	3.38	70	175	236
			5	10	66	6.36	2.65	2.71	13.23	6.63	4.48	3.38	70	175	236
			1	8	74	4.79	2.34	2.33	13.78	6.97	4.72	3.62	92	225	299
4		5	8	74	6.55	2.89	2.93	13.78	6.97	4.72	3.62	92	225	299	
		1	16	44	4.48	1.90	1.94	12.39	6.12	4.12	3.02	24	62	85	
		5	16	44	6.03	2.14	2.29	12.39	6.12	4.12	3.02	24	62	85	
20		3	1	12	58	4.69	2.10	2.12	12.85	6.40	4.32	3.22	47	120	163
			5	12	58	6.34	2.47	2.56	12.85	6.40	4.32	3.22	47	120	163
			1	10	66	4.82	2.24	2.24	13.23	6.63	4.48	3.38	70	175	236
		4	5	10	66	6.51	2.70	2.76	13.23	6.63	4.48	3.38	70	175	236
			1	8	74	4.98	2.41	2.41	13.78	6.97	4.72	3.62	92	225	299
			5	8	74	6.71	2.95	2.99	13.78	6.97	4.72	3.62	92	225	299
	40	2	1	16	44	4.81	1.97	2.04	12.39	6.12	4.12	3.02	24	62	85
			5	16	44	6.31	2.18	2.36	12.39	6.12	4.12	3.02	24	62	85
			1	12	58	5.04	2.21	2.24	12.85	6.40	4.32	3.22	47	120	163
		3	5	12	58	6.64	2.54	2.65	12.85	6.40	4.32	3.22	47	120	163
			1	10	66	5.18	2.36	2.38	13.23	6.63	4.48	3.38	70	175	236
			5	10	66	6.82	2.79	2.87	13.23	6.63	4.48	3.38	70	175	236
		4	1	8	74	5.35	2.56	2.57	13.78	6.97	4.72	3.62	92	225	299
			5	8	74	7.03	3.05	3.11	13.78	6.97	4.72	3.62	92	225	299

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
					5	2	1	15	38	4.36	1.99	2.01	13.48	6.66
		5	15	38	5.90	2.24	2.37	13.48	6.66	4.48	3.28	22	57	78
	3	1	11	54	4.61	2.17	2.18	14.02	6.99	4.71	3.51	43	110	149
		5	11	54	6.27	2.56	2.64	14.02	6.99	4.71	3.51	43	110	149
	4	1	9	62	4.75	2.31	2.30	14.47	7.26	4.91	3.71	64	160	216
		5	9	62	6.46	2.80	2.85	14.47	7.26	4.91	3.71	64	160	216
	5	1	7	68	4.92	2.50	2.48	15.18	7.69	5.21	4.01	84	204	271
		5	7	68	6.66	3.06	3.09	15.18	7.69	5.21	4.01	84	204	271
10	2	1	15	38	4.44	2.01	2.03	13.48	6.66	4.48	3.28	22	57	78
		5	15	38	5.97	2.25	2.39	13.48	6.66	4.48	3.28	22	57	78
	3	1	11	54	4.69	2.20	2.21	14.02	6.99	4.71	3.51	43	110	149
		5	11	54	6.34	2.58	2.66	14.02	6.99	4.71	3.51	43	110	149
	4	1	9	62	4.84	2.34	2.34	14.47	7.26	4.91	3.71	64	160	216
		5	9	62	6.53	2.82	2.87	14.47	7.26	4.91	3.71	64	160	216
	5	1	7	68	5.01	2.53	2.52	15.18	7.69	5.21	4.01	84	204	271
		5	7	68	6.74	3.09	3.12	15.18	7.69	5.21	4.01	84	204	271
20	2	1	15	38	4.60	2.04	2.08	13.48	6.66	4.48	3.28	22	57	78
		5	15	38	6.11	2.27	2.42	13.48	6.66	4.48	3.28	22	57	78
	3	1	11	54	4.87	2.25	2.27	14.02	6.99	4.71	3.51	43	110	149
		5	11	54	6.49	2.61	2.71	14.02	6.99	4.71	3.51	43	110	149
	4	1	9	62	5.02	2.40	2.40	14.47	7.26	4.91	3.71	64	160	216
		5	9	62	6.69	2.86	2.93	14.47	7.26	4.91	3.71	64	160	216
	5	1	7	68	5.19	2.61	2.60	15.18	7.69	5.21	4.01	84	204	271
		5	7	68	6.89	3.14	3.18	15.18	7.69	5.21	4.01	84	204	271
40	2	1	15	38	4.93	2.10	2.17	13.48	6.66	4.48	3.28	22	57	78
		5	15	38	6.38	2.32	2.49	13.48	6.66	4.48	3.28	22	57	78
	3	1	11	54	5.21	2.36	2.39	14.02	6.99	4.71	3.51	43	110	149
		5	11	54	6.79	2.69	2.80	14.02	6.99	4.71	3.51	43	110	149
	4	1	9	62	5.37	2.52	2.54	14.47	7.26	4.91	3.71	64	160	216
		5	9	62	6.99	2.96	3.03	14.47	7.26	4.91	3.71	64	160	216
	5	1	7	68	5.55	2.76	2.76	15.18	7.69	5.21	4.01	84	204	271
		5	7	68	7.20	3.25	3.30	15.18	7.69	5.21	4.01	84	204	271

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
					5	2	1	14	34	4.52	2.13	2.14	14.59	7.20
		5	14	34	6.01	2.37	2.51	14.59	7.20	4.84	3.54	20	52	72
	3	1	10	50	4.79	2.33	2.33	15.23	7.59	5.12	3.82	40	101	138
		5	10	50	6.42	2.72	2.80	15.23	7.59	5.12	3.82	40	101	138
	4	1	8	58	4.96	2.49	2.48	15.78	7.93	5.36	4.06	59	147	197
		5	8	58	6.64	2.97	3.02	15.78	7.93	5.36	4.06	59	147	197
	5	1	7	62	5.06	2.61	2.60	16.18	8.17	5.53	4.23	78	192	255
		5	7	62	6.77	3.18	3.21	16.18	8.17	5.53	4.23	78	192	255
10	2	1	14	34	4.59	2.14	2.17	14.59	7.20	4.84	3.54	20	52	72
		5	14	34	6.08	2.38	2.52	14.59	7.20	4.84	3.54	20	52	72
	3	1	10	50	4.88	2.36	2.36	15.23	7.59	5.12	3.82	40	101	138
		5	10	50	6.50	2.73	2.82	15.23	7.59	5.12	3.82	40	101	138
	4	1	8	58	5.04	2.52	2.51	15.78	7.93	5.36	4.06	59	147	197
		5	8	58	6.72	3.00	3.05	15.78	7.93	5.36	4.06	59	147	197
	5	1	7	62	5.15	2.65	2.64	16.18	8.17	5.53	4.23	78	192	255
		5	7	62	6.84	3.20	3.24	16.18	8.17	5.53	4.23	78	192	255
20	2	1	14	34	4.75	2.17	2.21	14.59	7.20	4.84	3.54	20	52	72
		5	14	34	6.21	2.41	2.56	14.59	7.20	4.84	3.54	20	52	72
	3	1	10	50	5.05	2.41	2.42	15.23	7.59	5.12	3.82	40	101	138
		5	10	50	6.64	2.77	2.86	15.23	7.59	5.12	3.82	40	101	138
	4	1	8	58	5.22	2.58	2.58	15.78	7.93	5.36	4.06	59	147	197
		5	8	58	6.87	3.04	3.10	15.78	7.93	5.36	4.06	59	147	197
	5	1	7	62	5.32	2.72	2.72	16.18	8.17	5.53	4.23	78	192	255
		5	7	62	6.99	3.26	3.30	16.18	8.17	5.53	4.23	78	192	255
40	2	1	14	34	5.06	2.24	2.30	14.59	7.20	4.84	3.54	20	52	72
		5	14	34	6.48	2.45	2.63	14.59	7.20	4.84	3.54	20	52	72
	3	1	10	50	5.39	2.51	2.55	15.23	7.59	5.12	3.82	40	101	138
		5	10	50	6.93	2.84	2.95	15.23	7.59	5.12	3.82	40	101	138
	4	1	8	58	5.57	2.70	2.72	15.78	7.93	5.36	4.06	59	147	197
		5	8	58	7.17	3.13	3.20	15.78	7.93	5.36	4.06	59	147	197
	5	1	7	62	5.68	2.87	2.87	16.18	8.17	5.53	4.23	78	192	255
		5	7	62	7.30	3.37	3.41	16.18	8.17	5.53	4.23	78	192	255

280 CHARACTER DATA RECORD 40K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	13	32	4.69	2.27	2.28	15.71	7.76	5.22	3.82	18	49	67	
		5	13	32	6.16	2.51	2.65	15.71	7.76	5.22	3.82	18	49	67	
		3	1	9	48	5.00	2.50	2.49	16.47	8.22	5.55	4.15	37	94	127
	4	5	9	48	6.61	2.88	2.96	16.47	8.22	5.55	4.15	37	94	127	
		1	7	56	5.19	2.68	2.67	17.18	8.65	5.85	4.45	54	135	181	
		5	7	56	6.86	3.17	3.22	17.18	8.65	5.85	4.45	54	135	181	
	5	1	6	60	5.32	2.84	2.81	17.71	8.97	6.08	4.68	72	175	232	
		5	6	60	7.02	3.40	3.43	17.71	8.97	6.08	4.68	72	175	232	
	10	2	1	13	32	4.77	2.28	2.30	15.71	7.76	5.22	3.82	18	49	67
			5	13	32	6.23	2.52	2.66	15.71	7.76	5.22	3.82	18	49	67
			3	1	9	48	5.08	2.52	2.52	16.47	8.22	5.55	4.15	37	94
		4	5	9	48	6.69	2.90	2.98	16.47	8.22	5.55	4.15	37	94	127
			1	7	56	5.28	2.71	2.70	17.18	8.65	5.85	4.45	54	135	181
			5	7	56	6.94	3.19	3.24	17.18	8.65	5.85	4.45	54	135	181
5		1	6	60	5.41	2.87	2.85	17.71	8.97	6.08	4.68	72	175	232	
		5	6	60	7.09	3.43	3.46	17.71	8.97	6.08	4.68	72	175	232	
20		2	1	13	32	4.92	2.31	2.35	15.71	7.76	5.22	3.82	18	49	67
			5	13	32	6.36	2.55	2.70	15.71	7.76	5.22	3.82	18	49	67
			3	1	9	48	5.25	2.57	2.59	16.47	8.22	5.55	4.15	37	94
		4	5	9	48	6.83	2.94	3.03	16.47	8.22	5.55	4.15	37	94	127
			1	7	56	5.45	2.78	2.77	17.18	8.65	5.85	4.45	54	135	181
			5	7	56	7.09	3.24	3.29	17.18	8.65	5.85	4.45	54	135	181
	5	1	6	60	5.58	2.95	2.93	17.71	8.97	6.08	4.68	72	175	232	
		5	6	60	7.24	3.48	3.51	17.71	8.97	6.08	4.68	72	175	232	
	40	2	1	13	32	5.23	2.38	2.44	15.71	7.76	5.22	3.82	18	49	67
			5	13	32	6.62	2.59	2.77	15.71	7.76	5.22	3.82	18	49	67
			3	1	9	48	5.59	2.68	2.71	16.47	8.22	5.55	4.15	37	94
		4	5	9	48	7.12	3.01	3.11	16.47	8.22	5.55	4.15	37	94	127
			1	7	56	5.80	2.90	2.91	17.18	8.65	5.85	4.45	54	135	181
			5	7	56	7.39	3.33	3.40	17.18	8.65	5.85	4.45	54	135	181
5		1	6	60	5.94	3.09	3.09	17.71	8.97	6.08	4.68	72	175	232	
		5	6	60	7.55	3.59	3.63	17.71	8.97	6.08	4.68	72	175	232	

300 CHARACTER DATA RECORD 40K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	12	30	4.87	2.41	2.42	16.85	8.32	5.60	4.10	17	45	63	
		5	12	30	6.32	2.66	2.79	16.85	8.32	5.60	4.10	17	45	63	
		3	1	9	42	5.12	2.61	2.61	17.47	8.70	5.87	4.37	34	88	120
	4	5	9	42	6.69	3.00	3.07	17.47	8.70	5.87	4.37	34	88	120	
		1	7	50	5.32	2.80	2.78	18.18	9.13	6.17	4.67	51	128	171	
		5	7	50	6.95	3.28	3.33	18.18	9.13	6.17	4.67	51	128	171	
	5	1	6	54	5.45	2.95	2.93	18.71	9.45	6.40	4.90	67	166	220	
		5	6	54	7.11	3.52	3.54	18.71	9.45	6.40	4.90	67	166	220	
	10	2	1	12	30	4.94	2.43	2.45	16.85	8.32	5.60	4.10	17	45	63
			5	12	30	6.38	2.67	2.81	16.85	8.32	5.60	4.10	17	45	63
			3	1	9	42	5.20	2.64	2.64	17.47	8.70	5.87	4.37	34	88
		4	5	9	42	6.76	3.01	3.10	17.47	8.70	5.87	4.37	34	88	120
			1	7	50	5.41	2.83	2.82	18.18	9.13	6.17	4.67	51	128	171
			5	7	50	7.03	3.31	3.36	18.18	9.13	6.17	4.67	51	128	171
5		1	6	54	5.54	2.99	2.97	18.71	9.45	6.40	4.90	67	166	220	
		5	6	54	7.19	3.54	3.57	18.71	9.45	6.40	4.90	67	166	220	
20		2	1	12	30	5.09	2.46	2.49	16.85	8.32	5.60	4.10	17	45	63
			5	12	30	6.51	2.69	2.84	16.85	8.32	5.60	4.10	17	45	63
			3	1	9	42	5.36	2.69	2.70	17.47	8.70	5.87	4.37	34	88
		4	5	9	42	6.90	3.05	3.14	17.47	8.70	5.87	4.37	34	88	120
			1	7	50	5.58	2.89	2.89	18.18	9.13	6.17	4.67	51	128	171
			5	7	50	7.17	3.35	3.41	18.18	9.13	6.17	4.67	51	128	171
	5	1	6	54	5.71	3.06	3.05	18.71	9.45	6.40	4.90	67	166	220	
		5	6	54	7.33	3.60	3.63	18.71	9.45	6.40	4.90	67	166	220	
	40	2	1	12	30	5.40	2.52	2.58	16.85	8.32	5.60	4.10	17	45	63
			5	12	30	6.77	2.74	2.91	16.85	8.32	5.60	4.10	17	45	63
			3	1	9	42	5.69	2.79	2.82	17.47	8.70	5.87	4.37	34	88
		4	5	9	42	7.18	3.13	3.23	17.47	8.70	5.87	4.37	34	88	120
			1	7	50	5.92	3.01	3.03	18.18	9.13	6.17	4.67	51	128	171
			5	7	50	7.46	3.45	3.51	18.18	9.13	6.17	4.67	51	128	171
5		1	6	54	6.06	3.21	3.21	18.71	9.45	6.40	4.90	67	166	220	
		5	6	54	7.63	3.70	3.75	18.71	9.45	6.40	4.90	67	166	220	

400 CHARACTER DATA RECORD 40K 7010

CW LNG	MRG ORD	NO. CF	PROCESS TIME					TAPE TIME				MAXIMUM NUMBER OF		
			B	G	MILLISECONDS/RECORD			MILLISECONDS/RECORD				RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	9	22	5.74	3.11	3.12	22.47	11.10	7.47	5.47	13	34	47
		5	9	22	7.08	3.36	3.48	22.47	11.10	7.47	5.47	13	34	47
	3	1	6	34	6.15	3.44	3.42	23.71	11.85	8.00	6.00	25	65	88
		5	6	34	7.64	3.82	3.89	23.71	11.85	8.00	6.00	25	65	88
	4	1	5	38	6.33	3.63	3.60	24.46	12.31	8.33	6.33	38	95	127
		5	5	38	7.86	4.12	4.15	24.46	12.31	8.33	6.33	38	95	127
	5	1	4	42	6.58	3.90	3.86	25.57	12.98	8.81	6.81	50	121	160
		5	4	42	8.15	4.47	4.48	25.57	12.98	8.81	6.81	50	121	160
10	2	1	9	22	5.81	3.13	3.14	22.47	11.10	7.47	5.47	13	34	47
		5	9	22	7.14	3.37	3.50	22.47	11.10	7.47	5.47	13	34	47
	3	1	6	34	6.22	3.46	3.45	23.71	11.85	8.00	6.00	25	65	88
		5	6	34	7.71	3.84	3.91	23.71	11.85	8.00	6.00	25	65	88
	4	1	5	38	6.41	3.66	3.64	24.46	12.31	8.33	6.33	38	95	127
		5	5	38	7.93	4.14	4.18	24.46	12.31	8.33	6.33	38	95	127
	5	1	4	42	6.66	3.94	3.90	25.57	12.98	8.81	6.81	50	121	160
		5	4	42	8.22	4.50	4.51	25.57	12.98	8.81	6.81	50	121	160
20	2	1	9	22	5.95	3.16	3.19	22.47	11.10	7.47	5.47	13	34	47
		5	9	22	7.26	3.39	3.53	22.47	11.10	7.47	5.47	13	34	47
	3	1	6	34	6.38	3.52	3.51	23.71	11.85	8.00	6.00	25	65	88
		5	6	34	7.84	3.88	3.95	23.71	11.85	8.00	6.00	25	65	88
	4	1	5	38	6.57	3.72	3.71	24.46	12.31	8.33	6.33	38	95	127
		5	5	38	8.07	4.19	4.23	24.46	12.31	8.33	6.33	38	95	127
	5	1	4	42	6.82	4.01	3.98	25.57	12.98	8.81	6.81	50	121	160
		5	4	42	8.36	4.55	4.57	25.57	12.98	8.81	6.81	50	121	160
40	2	1	9	22	6.23	3.22	3.28	22.47	11.10	7.47	5.47	13	34	47
		5	9	22	7.50	3.44	3.60	22.47	11.10	7.47	5.47	13	34	47
	3	1	6	34	6.69	3.62	3.64	23.71	11.85	8.00	6.00	25	65	88
		5	6	34	8.11	3.95	4.04	23.71	11.85	8.00	6.00	25	65	88
	4	1	5	38	6.89	3.85	3.85	24.46	12.31	8.33	6.33	38	95	127
		5	5	38	8.34	4.28	4.33	24.46	12.31	8.33	6.33	38	95	127
	5	1	4	42	7.15	4.16	4.14	25.57	12.98	8.81	6.81	50	121	160
		5	4	42	8.64	4.66	4.68	25.57	12.98	8.81	6.81	50	121	160

500 CHARACTER DATA RECORD 40K 7010

CW LNG	MRG ORD	NO. CF	PROCESS TIME					TAPE TIME				MAXIMUM NUMBER OF		
			B	G	MILLISECONDS/RECORD			MILLISECONDS/RECORD				RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	7	20	6.71	3.83	3.83	28.18	13.93	9.37	6.87	10	27	37
		5	7	20	8.02	4.08	4.19	28.18	13.93	9.37	6.87	10	27	37
	3	1	5	26	7.06	4.16	4.14	29.46	14.71	9.93	7.43	20	52	71
		5	5	26	8.46	4.55	4.61	29.46	14.71	9.93	7.43	20	52	71
	4	1	4	30	7.32	4.43	4.39	30.57	15.38	10.41	7.91	30	76	101
		5	4	30	8.77	4.92	4.94	30.57	15.38	10.41	7.91	30	76	101
	5	1	3	34	7.72	4.86	4.80	32.43	16.51	11.21	8.71	40	96	126
		5	3	34	9.22	5.42	5.41	32.43	16.51	11.21	8.71	40	96	126
10	2	1	7	20	6.78	3.85	3.85	28.18	13.93	9.37	6.87	10	27	37
		5	7	20	8.08	4.09	4.21	28.18	13.93	9.37	6.87	10	27	37
	3	1	5	26	7.13	4.19	4.17	29.46	14.71	9.93	7.43	20	52	71
		5	5	26	8.52	4.57	4.63	29.46	14.71	9.93	7.43	20	52	71
	4	1	4	30	7.40	4.46	4.43	30.57	15.38	10.41	7.91	30	76	101
		5	4	30	8.84	4.94	4.97	30.57	15.38	10.41	7.91	30	76	101
	5	1	3	34	7.80	4.89	4.84	32.43	16.51	11.21	8.71	40	96	126
		5	3	34	9.28	5.45	5.44	32.43	16.51	11.21	8.71	40	96	126
20	2	1	7	20	6.92	3.88	3.90	28.18	13.93	9.37	6.87	10	27	37
		5	7	20	8.20	4.11	4.24	28.18	13.93	9.37	6.87	10	27	37
	3	1	5	26	7.28	4.24	4.23	29.46	14.71	9.93	7.43	20	52	71
		5	5	26	8.64	4.60	4.67	29.46	14.71	9.93	7.43	20	52	71
	4	1	4	30	7.55	4.53	4.50	30.57	15.38	10.41	7.91	30	76	101
		5	4	30	8.97	4.99	5.02	30.57	15.38	10.41	7.91	30	76	101
	5	1	3	34	7.96	4.97	4.92	32.43	16.51	11.21	8.71	40	96	126
		5	3	34	9.42	5.50	5.50	32.43	16.51	11.21	8.71	40	96	126
40	2	1	7	20	7.19	3.94	3.99	28.18	13.93	9.37	6.87	10	27	37
		5	7	20	8.43	4.16	4.31	28.18	13.93	9.37	6.87	10	27	37
	3	1	5	26	7.57	4.35	4.36	29.46	14.71	9.93	7.43	20	52	71
		5	5	26	8.89	4.68	4.76	29.46	14.71	9.93	7.43	20	52	71
	4	1	4	30	7.85	4.65	4.64	30.57	15.38	10.41	7.91	30	76	101
		5	4	30	9.23	5.08	5.12	30.57	15.38	10.41	7.91	30	76	101
	5	1	3	34	8.27	5.12	5.08	32.43	16.51	11.21	8.71	40	96	126
		5	3	34	9.68	5.61	5.62	32.43	16.51	11.21	8.71	40	96	126



750 CHARACTER DATA RECORD 40K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	4	16	9.27	5.75	5.73	43.07	21.38	14.41	10.66	7	17	24	
		5	4	16	10.50	6.00	6.09	43.07	21.38	14.41	10.66	7	17	24	
	3	1	3	20	9.71	6.21	6.15	44.93	22.51	15.21	11.46	13	34	46	
		5	3	20	11.02	6.59	6.62	44.93	22.51	15.21	11.46	13	34	46	
	4	1	2	22	10.44	7.01	6.92	48.65	24.77	16.82	13.07	20	48	63	
		5	2	22	11.78	7.49	7.47	48.65	24.77	16.82	13.07	20	48	63	
	5	1	2	22	10.44	7.05	6.96	48.65	24.77	16.82	13.07	26	64	84	
		5	2	22	11.78	7.62	7.57	48.65	24.77	16.82	13.07	26	64	84	
	10	2	1	4	16	9.34	5.77	5.75	43.07	21.38	14.41	10.66	7	17	24
			5	4	16	10.56	6.01	6.11	43.07	21.38	14.41	10.66	7	17	24
3		1	3	20	9.78	6.23	6.18	44.93	22.51	15.21	11.46	13	34	46	
		5	3	20	11.07	6.61	6.64	44.93	22.51	15.21	11.46	13	34	46	
4		1	2	22	10.51	7.04	6.95	48.65	24.77	16.82	13.07	20	48	63	
		5	2	22	11.84	7.52	7.49	48.65	24.77	16.82	13.07	20	48	63	
5		1	2	22	10.51	7.09	7.00	48.65	24.77	16.82	13.07	26	64	84	
		5	2	22	11.84	7.64	7.60	48.65	24.77	16.82	13.07	26	64	84	
20		2	1	4	16	9.47	5.80	5.79	43.07	21.38	14.41	10.66	7	17	24
			5	4	16	10.66	6.03	6.14	43.07	21.38	14.41	10.66	7	17	24
	3	1	3	20	9.91	6.28	6.24	44.93	22.51	15.21	11.46	13	34	46	
		5	3	20	11.19	6.65	6.68	44.93	22.51	15.21	11.46	13	34	46	
	4	1	2	22	10.65	7.10	7.02	48.65	24.77	16.82	13.07	20	48	63	
		5	2	22	11.96	7.56	7.54	48.65	24.77	16.82	13.07	20	48	63	
	5	1	2	22	10.65	7.16	7.08	48.65	24.77	16.82	13.07	26	64	84	
		5	2	22	11.96	7.70	7.66	48.65	24.77	16.82	13.07	26	64	84	
	40	2	1	4	16	9.73	5.86	5.89	43.07	21.38	14.41	10.66	7	17	24
			5	4	16	10.88	6.08	6.21	43.07	21.38	14.41	10.66	7	17	24
3		1	3	20	10.19	6.39	6.37	44.93	22.51	15.21	11.46	13	34	46	
		5	3	20	11.43	6.72	6.77	44.93	22.51	15.21	11.46	13	34	46	
4		1	2	22	10.94	7.22	7.16	48.65	24.77	16.82	13.07	20	48	63	
		5	2	22	12.20	7.65	7.65	48.65	24.77	16.82	13.07	20	48	63	
5		1	2	22	10.94	7.31	7.24	48.65	24.77	16.82	13.07	26	64	84	
		5	2	22	12.20	7.80	7.78	48.65	24.77	16.82	13.07	26	64	84	

1000 CHARACTER DATA RECORD 40K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	3	12	11.71	7.57	7.52	57.43	28.51	19.21	14.21	5	13	18	
		5	3	12	12.83	7.81	7.88	57.43	28.51	19.21	14.21	5	13	18	
	3	1	2	16	12.52	8.40	8.31	61.15	30.77	20.82	15.82	10	25	33	
		5	2	16	13.74	8.78	8.78	61.15	30.77	20.82	15.82	10	25	33	
	4	1	2	16	12.52	8.44	8.35	61.15	30.77	20.82	15.82	15	38	50	
		5	2	16	13.74	8.93	8.90	61.15	30.77	20.82	15.82	15	38	50	
	5	1	1	20	14.69	10.76	10.57	72.30	37.55	25.65	20.65	19	43	55	
		5	1	20	16.00	11.33	11.19	72.30	37.55	25.65	20.65	19	43	55	
	10	2	1	3	12	11.77	7.58	7.54	57.43	28.51	19.21	14.21	5	13	18
			5	3	12	12.88	7.82	7.90	57.43	28.51	19.21	14.21	5	13	18
3		1	2	16	12.58	8.42	8.34	61.15	30.77	20.82	15.82	10	25	33	
		5	2	16	13.80	8.80	8.80	61.15	30.77	20.82	15.82	10	25	33	
4		1	2	16	12.58	8.47	8.38	61.15	30.77	20.82	15.82	15	38	50	
		5	2	16	13.80	8.95	8.92	61.15	30.77	20.82	15.82	15	38	50	
5		1	1	20	14.76	10.80	10.61	72.30	37.55	25.65	20.65	19	43	55	
		5	1	20	16.06	11.35	11.22	72.30	37.55	25.65	20.65	19	43	55	
20		2	1	3	12	11.89	7.62	7.59	57.43	28.51	19.21	14.21	5	13	18
			5	3	12	12.98	7.85	7.94	57.43	28.51	19.21	14.21	5	13	18
	3	1	2	16	12.71	8.48	8.40	61.15	30.77	20.82	15.82	10	25	33	
		5	2	16	13.91	8.84	8.84	61.15	30.77	20.82	15.82	10	25	33	
	4	1	2	16	12.71	8.53	8.45	61.15	30.77	20.82	15.82	15	38	50	
		5	2	16	13.91	9.00	8.97	61.15	30.77	20.82	15.82	15	38	50	
	5	1	1	20	14.90	10.87	10.69	72.30	37.55	25.65	20.65	19	43	55	
		5	1	20	16.18	11.41	11.27	72.30	37.55	25.65	20.65	19	43	55	
	40	2	1	3	12	12.12	7.68	7.68	57.43	28.51	19.21	14.21	5	13	18
			5	3	12	13.19	7.89	8.01	57.43	28.51	19.21	14.21	5	13	18
3		1	2	16	12.97	8.58	8.53	61.15	30.77	20.82	15.82	10	25	33	
		5	2	16	14.13	8.91	8.93	61.15	30.77	20.82	15.82	10	25	33	
4		1	2	16	12.97	8.66	8.59	61.15	30.77	20.82	15.82	15	38	50	
		5	2	16	14.13	9.09	9.08	61.15	30.77	20.82	15.82	15	38	50	
5		1	1	20	15.17	11.02	10.85	72.30	37.55	25.65	20.65	19	43	55	
		5	1	20	16.41	11.52	11.39	72.30	37.55	25.65	20.65	19	43	55	

1500 CHARACTER DATA RECORD 40K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	2	8	16.65	11.20	11.11	86.15	42.77	28.82	21.32	3	8	12	
		5	2	8	17.63	11.44	11.47	86.15	42.77	28.82	21.32	3	8	12	
	3	1	1	12	18.89	13.54	13.36	97.30	49.55	33.65	26.15	6	16	21	
		5	1	12	20.02	13.93	13.82	97.30	49.55	33.65	26.15	6	16	21	
	4	1	1	12	18.89	13.59	13.39	97.30	49.55	33.65	26.15	10	24	31	
		5	1	12	20.02	14.07	13.94	97.30	49.55	33.65	26.15	10	24	31	
	5	1	1	12	18.89	13.63	13.43	97.30	49.55	33.65	26.15	13	32	42	
		5	1	12	20.02	14.20	14.05	97.30	49.55	33.65	26.15	13	32	42	
	10	2	1	2	8	16.70	11.22	11.13	86.15	42.77	28.82	21.32	3	8	12
			5	2	8	17.67	11.46	11.49	86.15	42.77	28.82	21.32	3	8	12
3		1	1	12	18.95	13.57	13.39	97.30	49.55	33.65	26.15	6	16	21	
		5	1	12	20.07	13.95	13.84	97.30	49.55	33.65	26.15	6	16	21	
4		1	1	12	18.95	13.62	13.43	97.30	49.55	33.65	26.15	10	24	31	
		5	1	12	20.07	14.10	13.97	97.30	49.55	33.65	26.15	10	24	31	
5		1	1	12	18.95	13.67	13.47	97.30	49.55	33.65	26.15	13	32	42	
		5	1	12	20.07	14.22	14.08	97.30	49.55	33.65	26.15	13	32	42	
20		2	1	2	8	16.80	11.25	11.18	86.15	42.77	28.82	21.32	3	8	12
			5	2	8	17.76	11.48	11.52	86.15	42.77	28.82	21.32	3	8	12
	3	1	1	12	19.07	13.62	13.45	97.30	49.55	33.65	26.15	6	16	21	
		5	1	12	20.17	13.98	13.89	97.30	49.55	33.65	26.15	6	16	21	
	4	1	1	12	19.07	13.68	13.50	97.30	49.55	33.65	26.15	10	24	31	
		5	1	12	20.17	14.14	14.02	97.30	49.55	33.65	26.15	10	24	31	
	5	1	1	12	19.07	13.74	13.55	97.30	49.55	33.65	26.15	13	32	42	
		5	1	12	20.17	14.28	14.13	97.30	49.55	33.65	26.15	13	32	42	
	40	2	1	2	8	17.01	11.31	11.27	86.15	42.77	28.82	21.32	3	8	12
			5	2	8	17.94	11.52	11.59	86.15	42.77	28.82	21.32	3	8	12
3		1	1	12	19.31	13.72	13.57	97.30	49.55	33.65	26.15	6	16	21	
		5	1	12	20.37	14.06	13.98	97.30	49.55	33.65	26.15	6	16	21	
4		1	1	12	19.31	13.80	13.63	97.30	49.55	33.65	26.15	10	24	31	
		5	1	12	20.37	14.23	14.12	97.30	49.55	33.65	26.15	10	24	31	
5		1	1	12	19.31	13.89	13.71	97.30	49.55	33.65	26.15	13	32	42	
		5	1	12	20.37	14.38	14.25	97.30	49.55	33.65	26.15	13	32	42	

2000 CHARACTER DATA RECORD 40K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	1	8	23.14	16.34	16.15	122.30	61.55	41.65	31.65	2	6	8
		5	1	8	24.12	16.58	16.52	122.30	61.55	41.65	31.65	2	6	8
	3	1	1	8	23.14	16.41	16.22	122.30	61.55	41.65	31.65	5	12	16
		5	1	8	24.12	16.80	16.68	122.30	61.55	41.65	31.65	5	12	16
	4	1	1	8	23.14	16.46	16.25	122.30	61.55	41.65	31.65	7	19	25
5		1	8	24.12	16.94	16.80	122.30	61.55	41.65	31.65	7	19	25	
10	2	1	1	8	23.19	16.36	16.18	122.30	61.55	41.65	31.65	2	6	8
		5	1	8	24.16	16.60	16.54	122.30	61.55	41.65	31.65	2	6	8
	3	1	1	8	23.19	16.44	16.25	122.30	61.55	41.65	31.65	5	12	16
		5	1	8	24.16	16.82	16.70	122.30	61.55	41.65	31.65	5	12	16
	4	1	1	8	23.19	16.49	16.29	122.30	61.55	41.65	31.65	7	19	25
5		1	8	24.16	16.97	16.83	122.30	61.55	41.65	31.65	7	19	25	
20	2	1	1	8	23.29	16.39	16.22	122.30	61.55	41.65	31.65	2	6	8
		5	1	8	24.25	16.62	16.57	122.30	61.55	41.65	31.65	2	6	8
	3	1	1	8	23.29	16.49	16.31	122.30	61.55	41.65	31.65	5	12	16
		5	1	8	24.25	16.85	16.75	122.30	61.55	41.65	31.65	5	12	16
	4	1	1	8	23.29	16.55	16.36	122.30	61.55	41.65	31.65	7	19	25
5		1	8	24.25	17.01	16.88	122.30	61.55	41.65	31.65	7	19	25	
40	2	1	1	8	23.50	16.45	16.31	122.30	61.55	41.65	31.65	2	6	8
		5	1	8	24.43	16.66	16.64	122.30	61.55	41.65	31.65	2	6	8
	3	1	1	8	23.50	16.60	16.43	122.30	61.55	41.65	31.65	5	12	16
		5	1	8	24.43	16.93	16.84	122.30	61.55	41.65	31.65	5	12	16
	4	1	1	8	23.50	16.67	16.49	122.30	61.55	41.65	31.65	7	19	25
		5	1	8	24.43	17.10	16.98	122.30	61.55	41.65	31.65	7	19	25

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	300	672	3.34	.44	.47	1.07	.52	.35	.25	269	717	1003	
		5	300	672	5.89	.68	.84	1.07	.52	.35	.25	269	717	1003	
	3	1	262	774	3.40	.51	.54	1.08	.53	.35	.25	536	1421	1981	
		5	262	774	6.00	.90	1.00	1.08	.53	.35	.25	536	1421	1981	
	4	1	210	912	3.47	.56	.58	1.10	.54	.36	.26	799	2093	2898	
		5	210	912	6.13	1.05	1.13	1.10	.54	.36	.26	799	2093	2898	
	5	1	175	1006	3.51	.61	.62	1.12	.55	.37	.27	1058	2742	3769	
		5	175	1006	6.21	1.18	1.24	1.12	.55	.37	.27	1058	2742	3769	
	10	2	1	300	672	3.47	.45	.49	1.07	.52	.35	.25	269	717	1003
			5	300	672	6.01	.69	.85	1.07	.52	.35	.25	269	717	1003
3		1	262	774	3.53	.54	.57	1.08	.53	.35	.25	536	1421	1981	
		5	262	774	6.12	.92	1.02	1.08	.53	.35	.25	536	1421	1981	
4		1	210	912	3.61	.59	.61	1.10	.54	.36	.26	799	2093	2898	
		5	210	912	6.25	1.07	1.15	1.10	.54	.36	.26	799	2093	2898	
5		1	175	1006	3.65	.65	.66	1.12	.55	.37	.27	1058	2742	3769	
		5	175	1006	6.33	1.20	1.27	1.12	.55	.37	.27	1058	2742	3769	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	200	504	3.32	.50	.54	1.61	.78	.52	.37	179	478	669	
		5	200	504	5.77	.75	.90	1.61	.78	.52	.37	179	478	669	
	3	1	175	580	3.38	.58	.60	1.62	.79	.53	.38	357	947	1321	
		5	175	580	5.88	.97	1.07	1.62	.79	.53	.38	357	947	1321	
	4	1	140	684	3.45	.63	.65	1.65	.81	.54	.39	532	1395	1932	
		5	140	684	6.01	1.12	1.19	1.65	.81	.54	.39	532	1395	1932	
	5	1	116	756	3.50	.68	.69	1.69	.83	.56	.41	705	1827	2511	
		5	116	756	6.09	1.25	1.31	1.69	.83	.56	.41	705	1827	2511	
	10	2	1	200	504	3.44	.52	.56	1.61	.78	.52	.37	179	478	669
			5	200	504	5.88	.76	.92	1.61	.78	.52	.37	179	478	669
3		1	175	580	3.50	.61	.63	1.62	.79	.53	.38	357	947	1321	
		5	175	580	5.99	.98	1.09	1.62	.79	.53	.38	357	947	1321	
4		1	140	684	3.58	.66	.68	1.65	.81	.54	.39	532	1395	1932	
		5	140	684	6.12	1.14	1.22	1.65	.81	.54	.39	532	1395	1932	
5		1	116	756	3.63	.72	.73	1.69	.83	.56	.41	705	1827	2511	
		5	116	756	6.21	1.27	1.34	1.69	.83	.56	.41	705	1827	2511	
20		2	1	200	504	3.69	.55	.61	1.61	.78	.52	.37	179	478	669
			5	200	504	6.09	.78	.95	1.61	.78	.52	.37	179	478	669
	3	1	175	580	3.76	.66	.69	1.62	.79	.53	.38	357	947	1321	
		5	175	580	6.21	1.02	1.13	1.62	.79	.53	.38	357	947	1321	
	4	1	140	684	3.84	.72	.75	1.65	.81	.54	.39	532	1395	1932	
		5	140	684	6.35	1.19	1.27	1.65	.81	.54	.39	532	1395	1932	
	5	1	116	756	3.90	.79	.81	1.69	.83	.56	.41	705	1827	2511	
		5	116	756	6.44	1.33	1.39	1.69	.83	.56	.41	705	1827	2511	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	150	404	3.32	.57	.60	2.14	1.05	.70	.50	134	358	501	
		5	150	404	5.69	.81	.97	2.14	1.05	.70	.50	134	358	501	
	3	1	131	464	3.38	.65	.67	2.17	1.06	.71	.51	268	710	990	
		5	131	464	5.80	1.03	1.13	2.17	1.06	.71	.51	268	710	990	
	4	1	105	548	3.46	.70	.71	2.21	1.08	.73	.53	399	1046	1449	
		5	105	548	5.94	1.18	1.26	2.21	1.08	.73	.53	399	1046	1449	
	5	1	87	604	3.50	.75	.76	2.25	1.11	.75	.55	529	1370	1883	
		5	87	604	6.02	1.32	1.38	2.25	1.11	.75	.55	529	1370	1883	
	10	2	1	150	404	3.44	.58	.62	2.14	1.05	.70	.50	134	358	501
			5	150	404	5.80	.82	.98	2.14	1.05	.70	.50	134	358	501
3		1	131	464	3.50	.67	.70	2.17	1.06	.71	.51	268	710	990	
		5	131	464	5.91	1.05	1.16	2.17	1.06	.71	.51	268	710	990	
4		1	105	548	3.58	.73	.75	2.21	1.08	.73	.53	399	1046	1449	
		5	105	548	6.05	1.21	1.29	2.21	1.08	.73	.53	399	1046	1449	
5		1	87	604	3.63	.79	.80	2.25	1.11	.75	.55	529	1370	1883	
		5	87	604	6.13	1.34	1.41	2.25	1.11	.75	.55	529	1370	1883	
20		2	1	150	404	3.69	.61	.67	2.14	1.05	.70	.50	134	358	501
			5	150	404	6.01	.85	1.02	2.14	1.05	.70	.50	134	358	501
	3	1	131	464	3.75	.72	.76	2.17	1.06	.71	.51	268	710	990	
		5	131	464	6.13	1.09	1.20	2.17	1.06	.71	.51	268	710	990	
	4	1	105	548	3.84	.79	.82	2.21	1.08	.73	.53	399	1046	1449	
		5	105	548	6.27	1.25	1.34	2.21	1.08	.73	.53	399	1046	1449	
	5	1	87	604	3.89	.86	.88	2.25	1.11	.75	.55	529	1370	1883	
		5	87	604	6.36	1.40	1.46	2.25	1.11	.75	.55	529	1370	1883	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME						TAPE TIME				MAXIMUM NUMBER OF		
			B	G	MILLISECONDS/RECORD			MILLISECONDS/RECORD				RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	120	336	3.34	.63	.67	2.68	1.31	.88	.63	107	286	401	
		5	120	336	5.65	.88	1.03	2.68	1.31	.88	.63	107	286	401	
	3	1	105	386	3.40	.71	.73	2.71	1.32	.89	.64	214	568	792	
		5	105	386	5.76	1.10	1.20	2.71	1.32	.89	.64	214	568	792	
	4	1	84	456	3.48	.77	.78	2.76	1.36	.91	.66	319	837	1159	
		5	84	456	5.90	1.25	1.33	2.76	1.36	.91	.66	319	837	1159	
	5	1	70	502	3.53	.82	.83	2.81	1.39	.93	.68	423	1096	1507	
		5	70	502	5.98	1.39	1.45	2.81	1.39	.93	.68	423	1096	1507	
10	2	1	120	336	3.46	.65	.69	2.68	1.31	.88	.63	107	286	401	
		5	120	336	5.75	.89	1.05	2.68	1.31	.88	.63	107	286	401	
	3	1	105	386	3.52	.74	.76	2.71	1.32	.89	.64	214	568	792	
		5	105	386	5.86	1.12	1.22	2.71	1.32	.89	.64	214	568	792	
	4	1	84	456	3.60	.80	.81	2.76	1.36	.91	.66	319	837	1159	
		5	84	456	6.00	1.28	1.35	2.76	1.36	.91	.66	319	837	1159	
	5	1	70	502	3.65	.86	.87	2.81	1.39	.93	.68	423	1096	1507	
		5	70	502	6.09	1.41	1.47	2.81	1.39	.93	.68	423	1096	1507	
20	2	1	120	336	3.70	.68	.73	2.68	1.31	.88	.63	107	286	401	
		5	120	336	5.96	.91	1.08	2.68	1.31	.88	.63	107	286	401	
	3	1	105	386	3.76	.79	.83	2.71	1.32	.89	.64	214	568	792	
		5	105	386	6.07	1.15	1.27	2.71	1.32	.89	.64	214	568	792	
	4	1	84	456	3.85	.86	.88	2.76	1.36	.91	.66	319	837	1159	
		5	84	456	6.22	1.32	1.41	2.76	1.36	.91	.66	319	837	1159	
	5	1	70	502	3.91	.93	.95	2.81	1.39	.93	.68	423	1096	1507	
		5	70	502	6.31	1.47	1.53	2.81	1.39	.93	.68	423	1096	1507	
40	2	1	120	336	4.17	.74	.83	2.68	1.31	.88	.63	107	286	401	
		5	120	336	6.37	.96	1.15	2.68	1.31	.88	.63	107	286	401	
	3	1	105	386	4.25	.89	.95	2.71	1.32	.89	.64	214	568	792	
		5	105	386	6.49	1.23	1.36	2.71	1.32	.89	.64	214	568	792	
	4	1	84	456	4.35	.98	1.02	2.76	1.36	.91	.66	319	837	1159	
		5	84	456	6.65	1.41	1.51	2.76	1.36	.91	.66	319	837	1159	
	5	1	70	502	4.41	1.08	1.11	2.81	1.39	.93	.68	423	1096	1507	
		5	70	502	6.74	1.57	1.65	2.81	1.39	.93	.68	423	1096	1507	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME						TAPE TIME				MAXIMUM NUMBER OF		
			B	G	MILLISECONDS/RECORD			MILLISECONDS/RECORD				RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	100	288	3.37	.70	.73	3.22	1.57	1.05	.75	89	239	334	
		5	100	288	5.62	.94	1.09	3.22	1.57	1.05	.75	89	239	334	
	3	1	87	332	3.43	.78	.80	3.25	1.59	1.07	.77	178	473	660	
		5	87	332	5.74	1.16	1.26	3.25	1.59	1.07	.77	178	473	660	
	4	1	70	390	3.51	.83	.85	3.31	1.63	1.09	.79	266	697	966	
		5	70	390	5.87	1.32	1.40	3.31	1.63	1.09	.79	266	697	966	
	5	1	58	432	3.57	.89	.90	3.38	1.67	1.12	.82	352	913	1255	
		5	58	432	5.96	1.46	1.52	3.38	1.67	1.12	.82	352	913	1255	
10	2	1	100	288	3.49	.71	.75	3.22	1.57	1.05	.75	89	239	334	
		5	100	288	5.72	.95	1.11	3.22	1.57	1.05	.75	89	239	334	
	3	1	87	332	3.55	.80	.83	3.25	1.59	1.07	.77	178	473	660	
		5	87	332	5.84	1.18	1.29	3.25	1.59	1.07	.77	178	473	660	
	4	1	70	390	3.63	.86	.88	3.31	1.63	1.09	.79	266	697	966	
		5	70	390	5.98	1.34	1.42	3.31	1.63	1.09	.79	266	697	966	
	5	1	58	432	3.69	.93	.94	3.38	1.67	1.12	.82	352	913	1255	
		5	58	432	6.07	1.48	1.54	3.38	1.67	1.12	.82	352	913	1255	
20	2	1	100	288	3.72	.74	.80	3.22	1.57	1.05	.75	89	239	334	
		5	100	288	5.92	.98	1.15	3.22	1.57	1.05	.75	89	239	334	
	3	1	87	332	3.79	.86	.89	3.25	1.59	1.07	.77	178	473	660	
		5	87	332	6.05	1.22	1.33	3.25	1.59	1.07	.77	178	473	660	
	4	1	70	390	3.88	.93	.95	3.31	1.63	1.09	.79	266	697	966	
		5	70	390	6.19	1.39	1.47	3.31	1.63	1.09	.79	266	697	966	
	5	1	58	432	3.94	1.00	1.02	3.38	1.67	1.12	.82	352	913	1255	
		5	58	432	6.28	1.54	1.60	3.38	1.67	1.12	.82	352	913	1255	
40	2	1	100	288	4.18	.81	.89	3.22	1.57	1.05	.75	89	239	334	
		5	100	288	6.33	1.02	1.22	3.22	1.57	1.05	.75	89	239	334	
	3	1	87	332	4.27	.96	1.02	3.25	1.59	1.07	.77	178	473	660	
		5	87	332	6.46	1.29	1.42	3.25	1.59	1.07	.77	178	473	660	
	4	1	70	390	4.36	1.05	1.09	3.31	1.63	1.09	.79	266	697	966	
		5	70	390	6.61	1.48	1.58	3.31	1.63	1.09	.79	266	697	966	
	5	1	58	432	4.43	1.15	1.18	3.38	1.67	1.12	.82	352	913	1255	
		5	58	432	6.71	1.65	1.72	3.38	1.67	1.12	.82	352	913	1255	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECCNDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	85	254	3.41	.76	.79	3.76	1.83	1.23	.88	76	204	286	
		5	85	254	5.62	1.01	1.16	3.76	1.83	1.23	.88	76	204	286	
		1	75	290	3.48	.84	.86	3.79	1.86	1.24	.89	153	406	566	
	3	5	75	290	5.73	1.23	1.33	3.79	1.86	1.24	.89	153	406	566	
		1	60	342	3.56	.90	.92	3.87	1.90	1.28	.93	228	598	828	
		5	60	342	5.87	1.39	1.46	3.87	1.90	1.28	.93	228	598	828	
	4	1	50	376	3.61	.96	.97	3.94	1.95	1.31	.96	302	783	1077	
		5	50	376	5.96	1.53	1.59	3.94	1.95	1.31	.96	302	783	1077	
		1	85	254	3.53	.78	.82	3.76	1.83	1.23	.88	76	204	286	
	10	2	5	85	254	5.72	1.02	1.18	3.76	1.83	1.23	.88	76	204	286
			1	75	290	3.59	.87	.89	3.79	1.86	1.24	.89	153	406	566
			5	75	290	5.83	1.25	1.35	3.79	1.86	1.24	.89	153	406	566
		3	1	60	342	3.68	.93	.95	3.87	1.90	1.28	.93	228	598	828
			5	60	342	5.97	1.41	1.49	3.87	1.90	1.28	.93	228	598	828
			1	50	376	3.73	1.00	1.01	3.94	1.95	1.31	.96	302	783	1077
4		5	50	376	6.06	1.55	1.61	3.94	1.95	1.31	.96	302	783	1077	
		1	85	254	3.76	.81	.86	3.76	1.83	1.23	.88	76	204	286	
		5	85	254	5.92	1.04	1.21	3.76	1.83	1.23	.88	76	204	286	
20		3	1	75	290	3.82	.92	.96	3.79	1.86	1.24	.89	153	406	566
			5	75	290	6.03	1.28	1.40	3.79	1.86	1.24	.89	153	406	566
			1	60	342	3.91	.99	1.02	3.87	1.90	1.28	.93	228	598	828
		4	5	60	342	6.18	1.46	1.54	3.87	1.90	1.28	.93	228	598	828
			1	50	376	3.97	1.07	1.09	3.94	1.95	1.31	.96	302	783	1077
			5	50	376	6.27	1.61	1.67	3.94	1.95	1.31	.96	302	783	1077
	40	2	1	85	254	4.21	.87	.96	3.76	1.83	1.23	.88	76	204	286
			5	85	254	6.31	1.09	1.28	3.76	1.83	1.23	.88	76	204	286
			1	75	290	4.29	1.03	1.08	3.79	1.86	1.24	.89	153	406	566
		3	5	75	290	6.43	1.36	1.49	3.79	1.86	1.24	.89	153	406	566
			1	60	342	4.39	1.12	1.16	3.87	1.90	1.28	.93	228	598	828
			5	60	342	6.59	1.55	1.64	3.87	1.90	1.28	.93	228	598	828
		4	1	50	376	4.46	1.22	1.25	3.94	1.95	1.31	.96	302	783	1077
			5	50	376	6.69	1.72	1.79	3.94	1.95	1.31	.96	302	783	1077

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECCNDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	75	224	3.46	.83	.86	4.29	2.10	1.40	1.00	67	179	250	
		5	75	224	5.62	1.07	1.22	4.29	2.10	1.40	1.00	67	179	250	
		1	65	260	3.53	.91	.93	4.34	2.12	1.42	1.02	134	355	494	
	3	5	65	260	5.74	1.30	1.40	4.34	2.12	1.42	1.02	134	355	494	
		1	52	306	3.61	.97	.98	4.42	2.18	1.46	1.06	199	523	723	
		5	52	306	5.89	1.46	1.53	4.42	2.18	1.46	1.06	199	523	723	
	4	1	43	338	3.67	1.03	1.04	4.51	2.23	1.50	1.10	264	684	940	
		5	43	338	5.98	1.60	1.66	4.51	2.23	1.50	1.10	264	684	940	
		1	75	224	3.57	.84	.88	4.29	2.10	1.40	1.00	67	179	250	
	10	2	5	75	224	5.72	1.08	1.24	4.29	2.10	1.40	1.00	67	179	250
			1	65	260	3.64	.94	.96	4.34	2.12	1.42	1.02	134	355	494
			5	65	260	5.84	1.31	1.42	4.34	2.12	1.42	1.02	134	355	494
		3	1	52	306	3.73	1.00	1.02	4.42	2.18	1.46	1.06	199	523	723
			5	52	306	5.99	1.48	1.56	4.42	2.18	1.46	1.06	199	523	723
			1	43	338	3.79	1.07	1.08	4.51	2.23	1.50	1.10	264	684	940
4		5	43	338	6.08	1.63	1.69	4.51	2.23	1.50	1.10	264	684	940	
		1	75	224	3.79	.87	.93	4.29	2.10	1.40	1.00	67	179	250	
		5	75	224	5.91	1.11	1.28	4.29	2.10	1.40	1.00	67	179	250	
20		3	1	65	260	3.87	.99	1.02	4.34	2.12	1.42	1.02	134	355	494
			5	65	260	6.04	1.35	1.46	4.34	2.12	1.42	1.02	134	355	494
			1	52	306	3.96	1.06	1.09	4.42	2.18	1.46	1.06	199	523	723
		4	5	52	306	6.19	1.53	1.61	4.42	2.18	1.46	1.06	199	523	723
			1	43	338	4.02	1.15	1.16	4.51	2.23	1.50	1.10	264	684	940
			5	43	338	6.29	1.68	1.74	4.51	2.23	1.50	1.10	264	684	940
	40	2	1	75	224	4.24	.94	1.02	4.29	2.10	1.40	1.00	67	179	250
			5	75	224	6.30	1.15	1.34	4.29	2.10	1.40	1.00	67	179	250
			1	65	260	4.33	1.09	1.15	4.34	2.12	1.42	1.02	134	355	494
		3	5	65	260	6.43	1.43	1.55	4.34	2.12	1.42	1.02	134	355	494
			1	52	306	4.43	1.19	1.23	4.42	2.18	1.46	1.06	199	523	723
			5	52	306	6.59	1.62	1.71	4.42	2.18	1.46	1.06	199	523	723
		4	1	43	338	4.50	1.29	1.32	4.51	2.23	1.50	1.10	264	684	940
			5	43	338	6.70	1.79	1.86	4.51	2.23	1.50	1.10	264	684	940

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CW LNG	MRG ORD	NO. CF				PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G		PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	66	204	3.51	.89	.92	4.83	2.36	1.58	1.13	59	159	222	
		5	66	204	5.65	1.14	1.29	4.83	2.36	1.58	1.13	59	159	222	
	3	1	58	232	3.58	.98	1.00	4.88	2.39	1.60	1.15	119	315	440	
		5	58	232	5.75	1.36	1.46	4.88	2.39	1.60	1.15	119	315	440	
	4	1	46	276	3.67	1.04	1.05	4.98	2.45	1.64	1.19	177	464	642	
		5	46	276	5.90	1.53	1.60	4.98	2.45	1.64	1.19	177	464	642	
	5	1	38	304	3.72	1.11	1.11	5.08	2.51	1.69	1.24	235	607	834	
		5	38	304	6.00	1.67	1.73	5.08	2.51	1.69	1.24	235	607	834	
	10	2	1	66	204	3.62	.91	.95	4.83	2.36	1.58	1.13	59	159	222
			5	66	204	5.74	1.15	1.31	4.83	2.36	1.58	1.13	59	159	222
3		1	58	232	3.69	1.00	1.03	4.88	2.39	1.60	1.15	119	315	440	
		5	58	232	5.85	1.38	1.48	4.88	2.39	1.60	1.15	119	315	440	
4		1	46	276	3.78	1.07	1.09	4.98	2.45	1.64	1.19	177	464	642	
		5	46	276	6.00	1.55	1.63	4.98	2.45	1.64	1.19	177	464	642	
5		1	38	304	3.84	1.14	1.15	5.08	2.51	1.69	1.24	235	607	834	
		5	38	304	6.10	1.70	1.76	5.08	2.51	1.69	1.24	235	607	834	
20		2	1	66	204	3.84	.94	.99	4.83	2.36	1.58	1.13	59	159	222
			5	66	204	5.93	1.17	1.34	4.83	2.36	1.58	1.13	59	159	222
	3	1	58	232	3.91	1.05	1.09	4.88	2.39	1.60	1.15	119	315	440	
		5	58	232	6.04	1.42	1.53	4.88	2.39	1.60	1.15	119	315	440	
	4	1	46	276	4.01	1.13	1.16	4.98	2.45	1.64	1.19	177	464	642	
		5	46	276	6.20	1.60	1.68	4.98	2.45	1.64	1.19	177	464	642	
	5	1	38	304	4.08	1.22	1.23	5.08	2.51	1.69	1.24	235	607	834	
		5	38	304	6.30	1.75	1.81	5.08	2.51	1.69	1.24	235	607	834	
	40	2	1	66	204	4.28	1.00	1.09	4.83	2.36	1.58	1.13	59	159	222
			5	66	204	6.31	1.22	1.41	4.83	2.36	1.58	1.13	59	159	222
3		1	58	232	4.36	1.16	1.21	4.88	2.39	1.60	1.15	119	315	440	
		5	58	232	6.43	1.49	1.62	4.88	2.39	1.60	1.15	119	315	440	
4		1	46	276	4.47	1.26	1.29	4.98	2.45	1.64	1.19	177	464	642	
		5	46	276	6.60	1.69	1.78	4.98	2.45	1.64	1.19	177	464	642	
5		1	38	304	4.54	1.36	1.39	5.08	2.51	1.69	1.24	235	607	834	
		5	38	304	6.71	1.86	1.93	5.08	2.51	1.69	1.24	235	607	834	

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CW LNG	MRG ORD	NO. CF				PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G		PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	60	182	3.56	.96	.99	5.37	2.62	1.76	1.26	53	143	200	
		5	60	182	5.65	1.20	1.35	5.37	2.62	1.76	1.26	53	143	200	
	3	1	52	212	3.64	1.04	1.06	5.42	2.66	1.78	1.28	107	284	395	
		5	52	212	5.78	1.43	1.53	5.42	2.66	1.78	1.28	107	284	395	
	4	1	42	248	3.72	1.11	1.12	5.53	2.72	1.82	1.32	159	418	579	
		5	42	248	5.92	1.59	1.67	5.53	2.72	1.82	1.32	159	418	579	
	5	1	35	274	3.78	1.17	1.18	5.63	2.78	1.87	1.37	211	548	753	
		5	35	274	6.02	1.74	1.79	5.63	2.78	1.87	1.37	211	548	753	
	10	2	1	60	182	3.67	.97	1.01	5.37	2.62	1.76	1.26	53	143	200
			5	60	182	5.75	1.21	1.37	5.37	2.62	1.76	1.26	53	143	200
3		1	52	212	3.75	1.07	1.09	5.42	2.66	1.78	1.28	107	284	395	
		5	52	212	5.88	1.45	1.55	5.42	2.66	1.78	1.28	107	284	395	
4		1	42	248	3.83	1.14	1.15	5.53	2.72	1.82	1.32	159	418	579	
		5	42	248	6.02	1.62	1.69	5.53	2.72	1.82	1.32	159	418	579	
5		1	35	274	3.89	1.21	1.22	5.63	2.78	1.87	1.37	211	548	753	
		5	35	274	6.12	1.76	1.82	5.63	2.78	1.87	1.37	211	548	753	
20		2	1	60	182	3.89	1.00	1.06	5.37	2.62	1.76	1.26	53	143	200
			5	60	182	5.93	1.24	1.40	5.37	2.62	1.76	1.26	53	143	200
	3	1	52	212	3.97	1.12	1.15	5.42	2.66	1.78	1.28	107	284	395	
		5	52	212	6.07	1.48	1.59	5.42	2.66	1.78	1.28	107	284	395	
	4	1	42	248	4.06	1.20	1.22	5.53	2.72	1.82	1.32	159	418	579	
		5	42	248	6.21	1.66	1.74	5.53	2.72	1.82	1.32	159	418	579	
	5	1	35	274	4.13	1.28	1.30	5.63	2.78	1.87	1.37	211	548	753	
		5	35	274	6.31	1.82	1.88	5.63	2.78	1.87	1.37	211	548	753	
	40	2	1	60	182	4.32	1.07	1.15	5.37	2.62	1.76	1.26	53	143	200
			5	60	182	6.30	1.28	1.47	5.37	2.62	1.76	1.26	53	143	200
3		1	52	212	4.41	1.22	1.28	5.42	2.66	1.78	1.28	107	284	395	
		5	52	212	6.45	1.56	1.68	5.42	2.66	1.78	1.28	107	284	395	
4		1	42	248	4.51	1.32	1.36	5.53	2.72	1.82	1.32	159	418	579	
		5	42	248	6.60	1.75	1.85	5.53	2.72	1.82	1.32	159	418	579	
5		1	35	274	4.59	1.43	1.46	5.63	2.78	1.87	1.37	211	548	753	
		5	35	274	6.71	1.93	2.00	5.63	2.78	1.87	1.37	211	548	753	

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CW LNG	MRG ORD	NO. CF			PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECCNDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	50	154	3.68	1.09	1.12	6.44	3.15	2.11	1.51	44	119	167	
		5	50	154	5.72	1.33	1.48	6.44	3.15	2.11	1.51	44	119	167	
	3	1	43	180	3.76	1.18	1.19	6.51	3.19	2.14	1.54	89	236	329	
		5	43	180	5.85	1.56	1.66	6.51	3.19	2.14	1.54	89	236	329	
	4	1	35	210	3.85	1.24	1.25	6.63	3.26	2.19	1.59	133	348	483	
		5	35	210	5.99	1.73	1.80	6.63	3.26	2.19	1.59	133	348	483	
	5	1	29	232	3.91	1.31	1.32	6.76	3.34	2.25	1.65	176	456	627	
		5	29	232	6.09	1.88	1.93	6.76	3.34	2.25	1.65	176	456	627	
	10	2	1	50	154	3.79	1.10	1.14	6.44	3.15	2.11	1.51	44	119	167
			5	50	154	5.81	1.34	1.50	6.44	3.15	2.11	1.51	44	119	167
3		1	43	180	3.87	1.20	1.22	6.51	3.19	2.14	1.54	89	236	329	
		5	43	180	5.94	1.58	1.68	6.51	3.19	2.14	1.54	89	236	329	
4		1	35	210	3.96	1.27	1.29	6.63	3.26	2.19	1.59	133	348	483	
		5	35	210	6.08	1.75	1.83	6.63	3.26	2.19	1.59	133	348	483	
5		1	29	232	4.02	1.35	1.36	6.76	3.34	2.25	1.65	176	456	627	
		5	29	232	6.19	1.91	1.96	6.76	3.34	2.25	1.65	176	456	627	
20		2	1	50	154	4.00	1.13	1.19	6.44	3.15	2.11	1.51	44	119	167
			5	50	154	5.99	1.37	1.53	6.44	3.15	2.11	1.51	44	119	167
	3	1	43	180	4.08	1.25	1.29	6.51	3.19	2.14	1.54	89	236	329	
		5	43	180	6.13	1.62	1.73	6.51	3.19	2.14	1.54	89	236	329	
	4	1	35	210	4.18	1.34	1.36	6.63	3.26	2.19	1.59	133	348	483	
		5	35	210	6.27	1.80	1.88	6.63	3.26	2.19	1.59	133	348	483	
	5	1	29	232	4.25	1.43	1.44	6.76	3.34	2.25	1.65	176	456	627	
		5	29	232	6.38	1.96	2.02	6.76	3.34	2.25	1.65	176	456	627	
	40	2	1	50	154	4.42	1.20	1.28	6.44	3.15	2.11	1.51	44	119	167
			5	50	154	6.35	1.41	1.60	6.44	3.15	2.11	1.51	44	119	167
3		1	43	180	4.52	1.36	1.41	6.51	3.19	2.14	1.54	89	236	329	
		5	43	180	6.50	1.69	1.82	6.51	3.19	2.14	1.54	89	236	329	
4		1	35	210	4.62	1.46	1.50	6.63	3.26	2.19	1.59	133	348	483	
		5	35	210	6.66	1.89	1.98	6.63	3.26	2.19	1.59	133	348	483	
5		1	29	232	4.70	1.57	1.60	6.76	3.34	2.25	1.65	176	456	627	
		5	29	232	6.77	2.07	2.14	6.76	3.34	2.25	1.65	176	456	627	

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CW LNG	MRG ORD	NO. CF			PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECCNDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	42	136	3.82	1.22	1.25	7.53	3.68	2.46	1.76	38	102	143	
		5	42	136	5.81	1.46	1.61	7.53	3.68	2.46	1.76	38	102	143	
	3	1	37	156	3.89	1.31	1.32	7.60	3.72	2.50	1.80	76	202	282	
		5	37	156	5.93	1.69	1.79	7.60	3.72	2.50	1.80	76	202	282	
	4	1	30	182	3.98	1.38	1.39	7.74	3.81	2.56	1.86	114	299	414	
		5	30	182	6.07	1.87	1.94	7.74	3.81	2.56	1.86	114	299	414	
	5	1	25	200	4.05	1.45	1.46	7.89	3.90	2.62	1.92	151	391	538	
		5	25	200	6.17	2.02	2.07	7.89	3.90	2.62	1.92	151	391	538	
	10	2	1	42	136	3.93	1.24	1.27	7.53	3.68	2.46	1.76	38	102	143
			5	42	136	5.90	1.47	1.63	7.53	3.68	2.46	1.76	38	102	143
3		1	37	156	4.00	1.33	1.36	7.60	3.72	2.50	1.80	76	202	282	
		5	37	156	6.02	1.71	1.81	7.60	3.72	2.50	1.80	76	202	282	
4		1	30	182	4.09	1.41	1.42	7.74	3.81	2.56	1.86	114	299	414	
		5	30	182	6.17	1.89	1.96	7.74	3.81	2.56	1.86	114	299	414	
5		1	25	200	4.16	1.49	1.50	7.89	3.90	2.62	1.92	151	391	538	
		5	25	200	6.27	2.05	2.10	7.89	3.90	2.62	1.92	151	391	538	
20		2	1	42	136	4.13	1.27	1.32	7.53	3.68	2.46	1.76	38	102	143
			5	42	136	6.08	1.50	1.66	7.53	3.68	2.46	1.76	38	102	143
	3	1	37	156	4.21	1.39	1.42	7.60	3.72	2.50	1.80	76	202	282	
		5	37	156	6.20	1.75	1.86	7.60	3.72	2.50	1.80	76	202	282	
	4	1	30	182	4.31	1.47	1.49	7.74	3.81	2.56	1.86	114	299	414	
		5	30	182	6.35	1.94	2.01	7.74	3.81	2.56	1.86	114	299	414	
	5	1	25	200	4.38	1.57	1.58	7.89	3.90	2.62	1.92	151	391	538	
		5	25	200	6.46	2.10	2.16	7.89	3.90	2.62	1.92	151	391	538	
	40	2	1	42	136	4.54	1.33	1.41	7.53	3.68	2.46	1.76	38	102	143
			5	42	136	6.43	1.54	1.73	7.53	3.68	2.46	1.76	38	102	143
3		1	37	156	4.63	1.49	1.54	7.60	3.72	2.50	1.80	76	202	282	
		5	37	156	6.56	1.82	1.95	7.60	3.72	2.50	1.80	76	202	282	
4		1	30	182	4.74	1.59	1.63	7.74	3.81	2.56	1.86	114	299	414	
		5	30	182	6.73	2.03	2.12	7.74	3.81	2.56	1.86	114	299	414	
5		1	25	200	4.82	1.71	1.74	7.89	3.90	2.62	1.92	151	391	538	
		5	25	200	6.84	2.21	2.28	7.89	3.90	2.62	1.92	151	391	538	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS					
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	37	120	3.96	1.35	1.38	8.60	4.20	2.82	2.02	33	89	125	
		5	37	120	5.91	1.59	1.74	8.60	4.20	2.82	2.02	33	89	125	
	3	1	32	138	4.04	1.44	1.46	8.69	4.26	2.86	2.06	67	177	247	
		5	32	138	6.03	1.83	1.92	8.69	4.26	2.86	2.06	67	177	247	
	4	1	26	162	4.13	1.52	1.53	8.85	4.36	2.93	2.13	99	261	361	
		5	26	162	6.18	2.00	2.07	8.85	4.36	2.93	2.13	99	261	361	
	5	1	21	180	4.21	1.60	1.61	9.06	4.48	3.01	2.21	132	341	468	
		5	21	180	6.30	2.17	2.22	9.06	4.48	3.01	2.21	132	341	468	
	10	2	1	37	120	4.06	1.36	1.40	8.60	4.20	2.82	2.02	33	89	125
			5	37	120	5.99	1.60	1.76	8.60	4.20	2.82	2.02	33	89	125
3		1	32	138	4.14	1.47	1.49	8.69	4.26	2.86	2.06	67	177	247	
		5	32	138	6.12	1.85	1.95	8.69	4.26	2.86	2.06	67	177	247	
4		1	26	162	4.24	1.55	1.56	8.85	4.36	2.93	2.13	99	261	361	
		5	26	162	6.27	2.03	2.10	8.85	4.36	2.93	2.13	99	261	361	
5		1	21	180	4.32	1.64	1.65	9.06	4.48	3.01	2.21	132	341	468	
		5	21	180	6.39	2.20	2.25	9.06	4.48	3.01	2.21	132	341	468	
20		2	1	37	120	4.26	1.40	1.45	8.60	4.20	2.82	2.02	33	89	125
			5	37	120	6.17	1.63	1.79	8.60	4.20	2.82	2.02	33	89	125
	3	1	32	138	4.35	1.52	1.55	8.69	4.26	2.86	2.06	67	177	247	
		5	32	138	6.30	1.88	1.99	8.69	4.26	2.86	2.06	67	177	247	
	4	1	26	162	4.45	1.61	1.63	8.85	4.36	2.93	2.13	99	261	361	
		5	26	162	6.46	2.07	2.15	8.85	4.36	2.93	2.13	99	261	361	
	5	1	21	180	4.54	1.71	1.73	9.06	4.48	3.01	2.21	132	341	468	
		5	21	180	6.58	2.25	2.31	9.06	4.48	3.01	2.21	132	341	468	
	40	2	1	37	120	4.67	1.46	1.54	8.60	4.20	2.82	2.02	33	89	125
			5	37	120	6.51	1.67	1.86	8.60	4.20	2.82	2.02	33	89	125
3		1	32	138	4.76	1.62	1.67	8.69	4.26	2.86	2.06	67	177	247	
		5	32	138	6.65	1.96	2.08	8.69	4.26	2.86	2.06	67	177	247	
4		1	26	162	4.87	1.73	1.77	8.85	4.36	2.93	2.13	99	261	361	
		5	26	162	6.82	2.17	2.25	8.85	4.36	2.93	2.13	99	261	361	
5		1	21	180	4.97	1.86	1.89	9.06	4.48	3.01	2.21	132	341	468	
		5	21	180	6.95	2.36	2.42	9.06	4.48	3.01	2.21	132	341	468	

180 CHARACTER DATA RECORD 60K 7010

CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS					
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	33	106	4.10	1.48	1.50	9.67	4.73	3.17	2.27	29	79	111	
		5	33	106	6.00	1.72	1.87	9.67	4.73	3.17	2.27	29	79	111	
	3	1	29	122	4.18	1.57	1.59	9.76	4.78	3.21	2.31	59	157	220	
		5	29	122	6.13	1.96	2.05	9.76	4.78	3.21	2.31	59	157	220	
	4	1	23	144	4.28	1.65	1.66	9.96	4.90	3.29	2.39	88	232	321	
		5	23	144	6.29	2.14	2.21	9.96	4.90	3.29	2.39	88	232	321	
	5	1	19	160	4.36	1.74	1.74	10.17	5.03	3.38	2.48	117	303	417	
		5	19	160	6.41	2.31	2.36	10.17	5.03	3.38	2.48	117	303	417	
	10	2	1	33	106	4.20	1.49	1.53	9.67	4.73	3.17	2.27	29	79	111
			5	33	106	6.09	1.73	1.89	9.67	4.73	3.17	2.27	29	79	111
3		1	29	122	4.28	1.60	1.62	9.76	4.78	3.21	2.31	59	157	220	
		5	29	122	6.21	1.97	2.07	9.76	4.78	3.21	2.31	59	157	220	
4		1	23	144	4.39	1.69	1.70	9.96	4.90	3.29	2.39	88	232	321	
		5	23	144	6.38	2.16	2.24	9.96	4.90	3.29	2.39	88	232	321	
5		1	19	160	4.47	1.78	1.78	10.17	5.03	3.38	2.48	117	303	417	
		5	19	160	6.50	2.33	2.39	10.17	5.03	3.38	2.48	117	303	417	
20		2	1	33	106	4.40	1.52	1.57	9.67	4.73	3.17	2.27	29	79	111
			5	33	106	6.25	1.76	1.92	9.67	4.73	3.17	2.27	29	79	111
	3	1	29	122	4.48	1.65	1.68	9.76	4.78	3.21	2.31	59	157	220	
		5	29	122	6.39	2.01	2.12	9.76	4.78	3.21	2.31	59	157	220	
	4	1	23	144	4.59	1.75	1.77	9.96	4.90	3.29	2.39	88	232	321	
		5	23	144	6.56	2.21	2.29	9.96	4.90	3.29	2.39	88	232	321	
	5	1	19	160	4.68	1.85	1.86	10.17	5.03	3.38	2.48	117	303	417	
		5	19	160	6.68	2.39	2.44	10.17	5.03	3.38	2.48	117	303	417	
	40	2	1	33	106	4.79	1.59	1.67	9.67	4.73	3.17	2.27	29	79	111
			5	33	106	6.59	1.80	1.99	9.67	4.73	3.17	2.27	29	79	111
3		1	29	122	4.88	1.75	1.80	9.76	4.78	3.21	2.31	59	157	220	
		5	29	122	6.73	2.09	2.21	9.76	4.78	3.21	2.31	59	157	220	
4		1	23	144	5.01	1.87	1.90	9.96	4.90	3.29	2.39	88	232	321	
		5	23	144	6.92	2.30	2.39	9.96	4.90	3.29	2.39	88	232	321	
5		1	19	160	5.10	2.00	2.02	10.17	5.03	3.38	2.48	117	303	417	
		5	19	160	7.05	2.49	2.56	10.17	5.03	3.38	2.48	117	303	417	



200 CHARACTER DATA RECORD 60K 7010

CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS					
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	30	96	4.25	1.61	1.63	10.74	5.25	3.52	2.52	26	71	100	
		5	30	96	6.11	1.85	2.00	10.74	5.25	3.52	2.52	26	71	100	
		1	26	110	4.33	1.70	1.72	10.85	5.32	3.57	2.57	53	142	197	
	4	5	26	110	6.24	2.09	2.18	10.85	5.32	3.57	2.57	53	142	197	
		1	21	130	4.43	1.79	1.79	11.06	5.44	3.65	2.65	79	209	289	
		5	21	130	6.41	2.28	2.34	11.06	5.44	3.65	2.65	79	209	289	
	5	1	17	144	4.52	1.88	1.88	11.31	5.59	3.76	2.76	105	273	375	
		5	17	144	6.53	2.45	2.50	11.31	5.59	3.76	2.76	105	273	375	
	10	2	1	30	96	4.35	1.62	1.66	10.74	5.25	3.52	2.52	26	71	100
			5	30	96	6.20	1.86	2.01	10.74	5.25	3.52	2.52	26	71	100
			1	26	110	4.43	1.73	1.75	10.85	5.32	3.57	2.57	53	142	197
		3	5	26	110	6.32	2.11	2.21	10.85	5.32	3.57	2.57	53	142	197
			1	21	130	4.54	1.82	1.83	11.06	5.44	3.65	2.65	79	209	289
			5	21	130	6.49	2.30	2.37	11.06	5.44	3.65	2.65	79	209	289
		5	1	17	144	4.63	1.92	1.92	11.31	5.59	3.76	2.76	105	273	375
5			17	144	6.62	2.48	2.53	11.31	5.59	3.76	2.76	105	273	375	
20		2	1	30	96	4.54	1.65	1.70	10.74	5.25	3.52	2.52	26	71	100
			5	30	96	6.36	1.89	2.05	10.74	5.25	3.52	2.52	26	71	100
			1	26	110	4.62	1.78	1.81	10.85	5.32	3.57	2.57	53	142	197
		3	5	26	110	6.49	2.14	2.25	10.85	5.32	3.57	2.57	53	142	197
			1	21	130	4.74	1.88	1.90	11.06	5.44	3.65	2.65	79	209	289
			5	21	130	6.67	2.34	2.42	11.06	5.44	3.65	2.65	79	209	289
		5	1	17	144	4.83	1.99	2.00	11.31	5.59	3.76	2.76	105	273	375
	5		17	144	6.80	2.53	2.59	11.31	5.59	3.76	2.76	105	273	375	
	40	2	1	30	96	4.93	1.71	1.79	10.74	5.25	3.52	2.52	26	71	100
			5	30	96	6.70	1.93	2.12	10.74	5.25	3.52	2.52	26	71	100
			1	26	110	5.02	1.88	1.93	10.85	5.32	3.57	2.57	53	142	197
		3	5	26	110	6.84	2.22	2.34	10.85	5.32	3.57	2.57	53	142	197
			1	21	130	5.15	2.00	2.04	11.06	5.44	3.65	2.65	79	209	289
			5	21	130	7.02	2.44	2.52	11.06	5.44	3.65	2.65	79	209	289
		5	1	17	144	5.25	2.14	2.16	11.31	5.59	3.76	2.76	105	273	375
5			17	144	7.16	2.64	2.70	11.31	5.59	3.76	2.76	105	273	375	

220 CHARACTER DATA RECORD 60K 7010

CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS					
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	27	88	4.41	1.74	1.76	11.82	5.78	3.87	2.77	24	65	91	
		5	27	88	6.24	1.98	2.13	11.82	5.78	3.87	2.77	24	65	91	
		1	23	104	4.50	1.84	1.85	11.96	5.86	3.93	2.83	48	128	179	
	3	5	23	104	6.39	2.23	2.32	11.96	5.86	3.93	2.83	48	128	179	
		1	19	118	4.59	1.93	1.93	12.17	5.99	4.02	2.92	72	190	263	
		5	19	118	6.53	2.41	2.48	12.17	5.99	4.02	2.92	72	190	263	
	5	1	15	134	4.70	2.03	2.03	12.48	6.18	4.16	3.06	96	247	339	
		5	15	134	6.68	2.60	2.65	12.48	6.18	4.16	3.06	96	247	339	
	10	2	1	27	88	4.50	1.75	1.79	11.82	5.78	3.87	2.77	24	65	91
			5	27	88	6.32	1.99	2.15	11.82	5.78	3.87	2.77	24	65	91
			1	23	104	4.60	1.87	1.88	11.96	5.86	3.93	2.83	48	128	179
		3	5	23	104	6.48	2.24	2.34	11.96	5.86	3.93	2.83	48	128	179
			1	19	118	4.69	1.96	1.97	12.17	5.99	4.02	2.92	72	190	263
			5	19	118	6.61	2.44	2.50	12.17	5.99	4.02	2.92	72	190	263
		5	1	15	134	4.80	2.07	2.07	12.48	6.18	4.16	3.06	96	247	339
5			15	134	6.77	2.63	2.68	12.48	6.18	4.16	3.06	96	247	339	
20		2	1	27	88	4.69	1.78	1.83	11.82	5.78	3.87	2.77	24	65	91
			5	27	88	6.48	2.02	2.18	11.82	5.78	3.87	2.77	24	65	91
			1	23	104	4.80	1.92	1.95	11.96	5.86	3.93	2.83	48	128	179
		3	5	23	104	6.65	2.28	2.39	11.96	5.86	3.93	2.83	48	128	179
			1	19	118	4.89	2.02	2.03	12.17	5.99	4.02	2.92	72	190	263
			5	19	118	6.79	2.48	2.56	12.17	5.99	4.02	2.92	72	190	263
		5	1	15	134	5.01	2.14	2.15	12.48	6.18	4.16	3.06	96	247	339
	5		15	134	6.95	2.68	2.73	12.48	6.18	4.16	3.06	96	247	339	
	40	2	1	27	88	5.07	1.85	1.92	11.82	5.78	3.87	2.77	24	65	91
			5	27	88	6.81	2.06	2.25	11.82	5.78	3.87	2.77	24	65	91
			1	23	104	5.19	2.02	2.07	11.96	5.86	3.93	2.83	48	128	179
		3	5	23	104	6.98	2.36	2.48	11.96	5.86	3.93	2.83	48	128	179
			1	19	118	5.29	2.14	2.17	12.17	5.99	4.02	2.92	72	190	263
			5	19	118	7.13	2.57	2.66	12.17	5.99	4.02	2.92	72	190	263
		5	1	15	134	5.42	2.29	2.31	12.48	6.18	4.16	3.06	96	247	339
5			15	134	7.30	2.79	2.85	12.48	6.18	4.16	3.06	96	247	339	

240 CHARACTER DATA RECORD 60K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	25	80	4.56	1.87	1.89	12.89	6.30	4.22	3.02	22	59	83	
		5	25	80	6.35	2.11	2.26	12.89	6.30	4.22	3.02	22	59	83	
	3	1	21	96	4.66	1.97	1.99	13.06	6.40	4.29	3.09	44	118	164	
		5	21	96	6.53	2.36	2.45	13.06	6.40	4.29	3.09	44	118	164	
	4	1	17	110	4.76	2.07	2.07	13.31	6.55	4.40	3.20	66	174	240	
		5	17	110	6.68	2.56	2.62	13.31	6.55	4.40	3.20	66	174	240	
	5	1	14	122	4.86	2.17	2.17	13.59	6.72	4.52	3.32	88	227	312	
		5	14	122	6.81	2.74	2.78	13.59	6.72	4.52	3.32	88	227	312	
	10	2	1	25	80	4.65	1.88	1.91	12.89	6.30	4.22	3.02	22	59	83
			5	25	80	6.43	2.12	2.27	12.89	6.30	4.22	3.02	22	59	83
3		1	21	96	4.76	2.00	2.02	13.06	6.40	4.29	3.09	44	118	164	
		5	21	96	6.61	2.38	2.47	13.06	6.40	4.29	3.09	44	118	164	
4		1	17	110	4.86	2.10	2.11	13.31	6.55	4.40	3.20	66	174	240	
		5	17	110	6.76	2.58	2.65	13.31	6.55	4.40	3.20	66	174	240	
5		1	14	122	4.96	2.21	2.21	13.59	6.72	4.52	3.32	88	227	312	
		5	14	122	6.89	2.76	2.81	13.59	6.72	4.52	3.32	88	227	312	
20		2	1	25	80	4.84	1.91	1.96	12.89	6.30	4.22	3.02	22	59	83
			5	25	80	6.60	2.14	2.31	12.89	6.30	4.22	3.02	22	59	83
	3	1	21	96	4.95	2.05	2.08	13.06	6.40	4.29	3.09	44	118	164	
		5	21	96	6.77	2.42	2.52	13.06	6.40	4.29	3.09	44	118	164	
	4	1	17	110	5.06	2.16	2.18	13.31	6.55	4.40	3.20	66	174	240	
		5	17	110	6.93	2.62	2.70	13.31	6.55	4.40	3.20	66	174	240	
	5	1	14	122	5.16	2.28	2.29	13.59	6.72	4.52	3.32	88	227	312	
		5	14	122	7.07	2.82	2.87	13.59	6.72	4.52	3.32	88	227	312	
	40	2	1	25	80	5.21	1.97	2.05	12.89	6.30	4.22	3.02	22	59	83
			5	25	80	6.92	2.19	2.38	12.89	6.30	4.22	3.02	22	59	83
3		1	21	96	5.34	2.16	2.20	13.06	6.40	4.29	3.09	44	118	164	
		5	21	96	7.11	2.49	2.61	13.06	6.40	4.29	3.09	44	118	164	
4		1	17	110	5.46	2.28	2.31	13.31	6.55	4.40	3.20	66	174	240	
		5	17	110	7.27	2.72	2.80	13.31	6.55	4.40	3.20	66	174	240	
5		1	14	122	5.56	2.43	2.45	13.59	6.72	4.52	3.32	88	227	312	
		5	14	122	7.42	2.92	2.99	13.59	6.72	4.52	3.32	88	227	312	

260 CHARACTER DATA RECORD 60K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	23	74	4.71	2.00	2.02	13.96	6.82	4.57	3.27	20	55	77	
		5	23	74	6.49	2.24	2.39	13.96	6.82	4.57	3.27	20	55	77	
	3	1	20	86	4.80	2.10	2.11	14.11	6.91	4.64	3.34	41	109	152	
		5	20	86	6.63	2.49	2.58	14.11	6.91	4.64	3.34	41	109	152	
	4	1	16	102	4.92	2.20	2.20	14.39	7.08	4.76	3.46	61	160	222	
		5	16	102	6.81	2.69	2.75	14.39	7.08	4.76	3.46	61	160	222	
	5	1	13	112	5.02	2.31	2.31	14.71	7.28	4.90	3.60	81	210	288	
		5	13	112	6.94	2.88	2.92	14.71	7.28	4.90	3.60	81	210	288	
	10	2	1	23	74	4.81	2.01	2.04	13.96	6.82	4.57	3.27	20	55	77
			5	23	74	6.56	2.25	2.40	13.96	6.82	4.57	3.27	20	55	77
3		1	20	86	4.90	2.13	2.14	14.11	6.91	4.64	3.34	41	109	152	
		5	20	86	6.71	2.50	2.60	14.11	6.91	4.64	3.34	41	109	152	
4		1	16	102	5.02	2.23	2.24	14.39	7.08	4.76	3.46	61	160	222	
		5	16	102	6.89	2.71	2.78	14.39	7.08	4.76	3.46	61	160	222	
5		1	13	112	5.12	2.35	2.35	14.71	7.28	4.90	3.60	81	210	288	
		5	13	112	7.03	2.90	2.95	14.71	7.28	4.90	3.60	81	210	288	
20		2	1	23	74	4.99	2.04	2.09	13.96	6.82	4.57	3.27	20	55	77
			5	23	74	6.72	2.28	2.44	13.96	6.82	4.57	3.27	20	55	77
	3	1	20	86	5.09	2.18	2.20	14.11	6.91	4.64	3.34	41	109	152	
		5	20	86	6.87	2.54	2.64	14.11	6.91	4.64	3.34	41	109	152	
	4	1	16	102	5.22	2.29	2.31	14.39	7.08	4.76	3.46	61	160	222	
		5	16	102	7.06	2.76	2.83	14.39	7.08	4.76	3.46	61	160	222	
	5	1	13	112	5.32	2.42	2.43	14.71	7.28	4.90	3.60	81	210	288	
		5	13	112	7.20	2.96	3.01	14.71	7.28	4.90	3.60	81	210	288	
	40	2	1	23	74	5.36	2.11	2.18	13.96	6.82	4.57	3.27	20	55	77
			5	23	74	7.04	2.32	2.51	13.96	6.82	4.57	3.27	20	55	77
3		1	20	86	5.47	2.28	2.33	14.11	6.91	4.64	3.34	41	109	152	
		5	20	86	7.20	2.61	2.73	14.11	6.91	4.64	3.34	41	109	152	
4		1	16	102	5.61	2.42	2.45	14.39	7.08	4.76	3.46	61	160	222	
		5	16	102	7.40	2.85	2.93	14.39	7.08	4.76	3.46	61	160	222	
5		1	13	112	5.72	2.57	2.59	14.71	7.28	4.90	3.60	81	210	288	
		5	13	112	7.54	3.06	3.12	14.71	7.28	4.90	3.60	81	210	288	

280 CHARACTER DATA RECORD 60K 7010

CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS					
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	21	70	4.89	2.13	2.15	15.06	7.36	4.93	3.53	19	51	71	
		5	21	70	6.64	2.37	2.52	15.06	7.36	4.93	3.53	19	51	71	
		1	18	82	4.98	2.24	2.25	15.23	7.47	5.01	3.61	38	101	140	
	4	5	18	82	6.79	2.63	2.72	15.23	7.47	5.01	3.61	38	101	140	
		1	15	94	5.08	2.33	2.34	15.48	7.62	5.12	3.72	57	149	207	
		5	15	94	6.94	2.82	2.88	15.48	7.62	5.12	3.72	57	149	207	
	5	1	12	106	5.20	2.45	2.45	15.85	7.84	5.28	3.88	75	195	267	
		5	12	106	7.10	3.02	3.06	15.85	7.84	5.28	3.88	75	195	267	
		5	12	106	7.10	3.02	3.06	15.85	7.84	5.28	3.88	75	195	267	
	10	2	1	21	70	4.98	2.15	2.18	15.06	7.36	4.93	3.53	19	51	71
			5	21	70	6.71	2.39	2.53	15.06	7.36	4.93	3.53	19	51	71
			1	18	82	5.08	2.27	2.28	15.23	7.47	5.01	3.61	38	101	140
		3	5	18	82	6.87	2.64	2.74	15.23	7.47	5.01	3.61	38	101	140
			1	15	94	5.18	2.36	2.37	15.48	7.62	5.12	3.72	57	149	207
			5	15	94	7.02	2.84	2.91	15.48	7.62	5.12	3.72	57	149	207
4		1	12	106	5.30	2.49	2.49	15.85	7.84	5.28	3.88	75	195	267	
		5	12	106	7.19	3.05	3.09	15.85	7.84	5.28	3.88	75	195	267	
		5	12	106	7.19	3.05	3.09	15.85	7.84	5.28	3.88	75	195	267	
20		2	1	21	70	5.16	2.18	2.22	15.06	7.36	4.93	3.53	19	51	71
			5	21	70	6.87	2.41	2.57	15.06	7.36	4.93	3.53	19	51	71
			1	18	82	5.26	2.32	2.34	15.23	7.47	5.01	3.61	38	101	140
		3	5	18	82	7.03	2.68	2.78	15.23	7.47	5.01	3.61	38	101	140
			1	15	94	5.37	2.43	2.44	15.48	7.62	5.12	3.72	57	149	207
			5	15	94	7.19	2.89	2.96	15.48	7.62	5.12	3.72	57	149	207
	4	1	12	106	5.50	2.56	2.57	15.85	7.84	5.28	3.88	75	195	267	
		5	12	106	7.36	3.10	3.15	15.85	7.84	5.28	3.88	75	195	267	
		5	12	106	7.36	3.10	3.15	15.85	7.84	5.28	3.88	75	195	267	
	40	2	1	21	70	5.52	2.24	2.31	15.06	7.36	4.93	3.53	19	51	71
			5	21	70	7.18	2.45	2.64	15.06	7.36	4.93	3.53	19	51	71
			1	18	82	5.64	2.42	2.47	15.23	7.47	5.01	3.61	38	101	140
		3	5	18	82	7.35	2.75	2.87	15.23	7.47	5.01	3.61	38	101	140
			1	15	94	5.76	2.55	2.58	15.48	7.62	5.12	3.72	57	149	207
			5	15	94	7.52	2.98	3.06	15.48	7.62	5.12	3.72	57	149	207
4		1	12	106	5.89	2.71	2.73	15.85	7.84	5.28	3.88	75	195	267	
		5	12	106	7.69	3.21	3.27	15.85	7.84	5.28	3.88	75	195	267	
		5	12	106	7.69	3.21	3.27	15.85	7.84	5.28	3.88	75	195	267	

300 CHARACTER DATA RECORD 60K 7010

CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS					
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	20	64	5.03	2.26	2.28	16.11	7.87	5.28	3.78	17	47	66	
		5	20	64	6.75	2.50	2.64	16.11	7.87	5.28	3.78	17	47	66	
		1	17	76	5.14	2.37	2.38	16.31	7.99	5.36	3.86	35	94	131	
	3	5	17	76	6.92	2.75	2.84	16.31	7.99	5.36	3.86	35	94	131	
		1	14	88	5.25	2.47	2.47	16.59	8.16	5.48	3.98	53	139	193	
		5	14	88	7.09	2.96	3.02	16.59	8.16	5.48	3.98	53	139	193	
	4	1	11	100	5.39	2.60	2.60	17.02	8.43	5.67	4.17	70	181	249	
		5	11	100	7.27	3.17	3.21	17.02	8.43	5.67	4.17	70	181	249	
		5	11	100	7.27	3.17	3.21	17.02	8.43	5.67	4.17	70	181	249	
	10	2	1	20	64	5.12	2.27	2.30	16.11	7.87	5.28	3.78	17	47	66
			5	20	64	6.83	2.51	2.66	16.11	7.87	5.28	3.78	17	47	66
			1	17	76	5.23	2.40	2.41	16.31	7.99	5.36	3.86	35	94	131
		3	5	17	76	7.00	2.77	2.87	16.31	7.99	5.36	3.86	35	94	131
			1	14	88	5.35	2.50	2.51	16.59	8.16	5.48	3.98	53	139	193
			5	14	88	7.17	2.98	3.04	16.59	8.16	5.48	3.98	53	139	193
4		1	11	100	5.48	2.64	2.64	17.02	8.43	5.67	4.17	70	181	249	
		5	11	100	7.35	3.19	3.24	17.02	8.43	5.67	4.17	70	181	249	
		5	11	100	7.35	3.19	3.24	17.02	8.43	5.67	4.17	70	181	249	
20		2	1	20	64	5.30	2.30	2.35	16.11	7.87	5.28	3.78	17	47	66
			5	20	64	6.98	2.53	2.69	16.11	7.87	5.28	3.78	17	47	66
			1	17	76	5.42	2.45	2.47	16.31	7.99	5.36	3.86	35	94	131
		3	5	17	76	7.16	2.81	2.91	16.31	7.99	5.36	3.86	35	94	131
			1	14	88	5.54	2.56	2.57	16.59	8.16	5.48	3.98	53	139	193
			5	14	88	7.33	3.03	3.10	16.59	8.16	5.48	3.98	53	139	193
	4	1	11	100	5.68	2.71	2.72	17.02	8.43	5.67	4.17	70	181	249	
		5	11	100	7.52	3.25	3.30	17.02	8.43	5.67	4.17	70	181	249	
		5	11	100	7.52	3.25	3.30	17.02	8.43	5.67	4.17	70	181	249	
	40	2	1	20	64	5.66	2.36	2.44	16.11	7.87	5.28	3.78	17	47	66
			5	20	64	7.29	2.58	2.76	16.11	7.87	5.28	3.78	17	47	66
			1	17	76	5.79	2.55	2.60	16.31	7.99	5.36	3.86	35	94	131
		3	5	17	76	7.48	2.88	3.00	16.31	7.99	5.36	3.86	35	94	131
			1	14	88	5.92	2.69	2.71	16.59	8.16	5.48	3.98	53	139	193
			5	14	88	7.66	3.12	3.20	16.59	8.16	5.48	3.98	53	139	193
4		1	11	100	6.07	2.86	2.88	17.02	8.43	5.67	4.17	70	181	249	
		5	11	100	7.85	3.36	3.41	17.02	8.43	5.67	4.17	70	181	249	
		5	11	100	7.85	3.36	3.41	17.02	8.43	5.67	4.17	70	181	249	

400 CHARACTER DATA RECORD 60K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	15	48	5.87	2.91	2.92	21.48	10.50	7.04	5.04	13	35	50
		5	15	48	7.49	3.15	3.29	21.48	10.50	7.04	5.04	13	35	50
	3	1	13	56	5.97	3.03	3.03	21.71	10.64	7.14	5.14	26	71	98
		5	13	56	7.65	3.41	3.50	21.71	10.64	7.14	5.14	26	71	98
	4	1	10	68	6.15	3.17	3.17	22.23	10.95	7.36	5.36	39	104	144
5		10	68	7.89	3.66	3.72	22.23	10.95	7.36	5.36	39	104	144	
5	1	8	76	6.30	3.33	3.32	22.78	11.29	7.60	5.60	52	135	185	
	5	8	76	8.08	3.90	3.93	22.78	11.29	7.60	5.60	52	135	185	
10	2	1	15	48	5.95	2.92	2.95	21.48	10.50	7.04	5.04	13	35	50
		5	15	48	7.56	3.16	3.30	21.48	10.50	7.04	5.04	13	35	50
	3	1	13	56	6.06	3.05	3.06	21.71	10.64	7.14	5.14	26	71	98
		5	13	56	7.72	3.43	3.52	21.71	10.64	7.14	5.14	26	71	98
	4	1	10	68	6.24	3.20	3.20	22.23	10.95	7.36	5.36	39	104	144
5		10	68	7.97	3.68	3.74	22.23	10.95	7.36	5.36	39	104	144	
5	1	8	76	6.39	3.37	3.36	22.78	11.29	7.60	5.60	52	135	185	
	5	8	76	8.16	3.92	3.96	22.78	11.29	7.60	5.60	52	135	185	
20	2	1	15	48	6.12	2.95	2.99	21.48	10.50	7.04	5.04	13	35	50
		5	15	48	7.70	3.18	3.34	21.48	10.50	7.04	5.04	13	35	50
	3	1	13	56	6.23	3.10	3.12	21.71	10.64	7.14	5.14	26	71	98
		5	13	56	7.87	3.47	3.56	21.71	10.64	7.14	5.14	26	71	98
	4	1	10	68	6.42	3.27	3.27	22.23	10.95	7.36	5.36	39	104	144
5		10	68	8.12	3.73	3.79	22.23	10.95	7.36	5.36	39	104	144	
5	1	8	76	6.58	3.44	3.44	22.78	11.29	7.60	5.60	52	135	185	
	5	8	76	8.32	3.98	4.02	22.78	11.29	7.60	5.60	52	135	185	
40	2	1	15	48	6.46	3.01	3.08	21.48	10.50	7.04	5.04	13	35	50
		5	15	48	7.99	3.23	3.41	21.48	10.50	7.04	5.04	13	35	50
	3	1	13	56	6.58	3.21	3.25	21.71	10.64	7.14	5.14	26	71	98
		5	13	56	8.17	3.54	3.65	21.71	10.64	7.14	5.14	26	71	98
	4	1	10	68	6.78	3.39	3.41	22.23	10.95	7.36	5.36	39	104	144
5		10	68	8.43	3.82	3.90	22.23	10.95	7.36	5.36	39	104	144	
5	1	8	76	6.94	3.59	3.60	22.78	11.29	7.60	5.60	52	135	185	
	5	8	76	8.63	4.08	4.14	22.78	11.29	7.60	5.60	52	135	185	

500 CHARACTER DATA RECORD 60K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	12	38	6.72	3.56	3.57	26.85	13.12	8.80	6.30	10	28	40
		5	12	38	8.26	3.80	3.93	26.85	13.12	8.80	6.30	10	28	40
	3	1	10	46	6.87	3.70	3.70	27.23	13.35	8.96	6.46	21	56	78
		5	10	46	8.47	4.09	4.17	27.23	13.35	8.96	6.46	21	56	78
	4	1	8	54	7.04	3.86	3.85	27.78	13.69	9.20	6.70	31	83	115
5		8	54	8.70	4.35	4.40	27.78	13.69	9.20	6.70	31	83	115	
5	1	7	58	7.14	3.99	3.97	28.18	13.93	9.37	6.87	42	109	150	
	5	7	58	8.83	4.55	4.58	28.18	13.93	9.37	6.87	42	109	150	
10	2	1	12	38	6.80	3.57	3.59	26.85	13.12	8.80	6.30	10	28	40
		5	12	38	8.33	3.81	3.95	26.85	13.12	8.80	6.30	10	28	40
	3	1	10	46	6.95	3.73	3.73	27.23	13.35	8.96	6.46	21	56	78
		5	10	46	8.54	4.11	4.19	27.23	13.35	8.96	6.46	21	56	78
	4	1	8	54	7.13	3.89	3.88	27.78	13.69	9.20	6.70	31	83	115
5		8	54	8.77	4.37	4.42	27.78	13.69	9.20	6.70	31	83	115	
5	1	7	58	7.23	4.02	4.01	28.18	13.93	9.37	6.87	42	109	150	
	5	7	58	8.90	4.58	4.61	28.18	13.93	9.37	6.87	42	109	150	
20	2	1	12	38	6.96	3.60	3.64	26.85	13.12	8.80	6.30	10	28	40
		5	12	38	8.46	3.83	3.98	26.85	13.12	8.80	6.30	10	28	40
	3	1	10	46	7.12	3.78	3.80	27.23	13.35	8.96	6.46	21	56	78
		5	10	46	8.69	4.14	4.24	27.23	13.35	8.96	6.46	21	56	78
	4	1	8	54	7.30	3.95	3.95	27.78	13.69	9.20	6.70	31	83	115
5		8	54	8.92	4.42	4.47	27.78	13.69	9.20	6.70	31	83	115	
5	1	7	58	7.41	4.10	4.09	28.18	13.93	9.37	6.87	42	109	150	
	5	7	58	9.05	4.63	4.67	28.18	13.93	9.37	6.87	42	109	150	
40	2	1	12	38	7.28	3.66	3.73	26.85	13.12	8.80	6.30	10	28	40
		5	12	38	8.74	3.88	4.05	26.85	13.12	8.80	6.30	10	28	40
	3	1	10	46	7.45	3.88	3.92	27.23	13.35	8.96	6.46	21	56	78
		5	10	46	8.97	4.22	4.32	27.23	13.35	8.96	6.46	21	56	78
	4	1	8	54	7.64	4.08	4.09	27.78	13.69	9.20	6.70	31	83	115
5		8	54	9.22	4.51	4.58	27.78	13.69	9.20	6.70	31	83	115	
5	1	7	58	7.76	4.24	4.25	28.18	13.93	9.37	6.87	42	109	150	
	5	7	58	9.35	4.74	4.79	28.18	13.93	9.37	6.87	42	109	150	

750 CHARACTER DATA RECORD 60K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	8	26	8.94	5.18	5.18	40.28	19.69	13.20	9.45	7	19	26	
		5	8	26	10.34	5.42	5.54	40.28	19.69	13.20	9.45	7	19	26	
	3	1	7	30	9.08	5.33	5.32	40.68	19.93	13.37	9.62	14	37	52	
		5	7	30	10.53	5.72	5.79	40.68	19.93	13.37	9.62	14	37	52	
		5	5	38	9.41	5.63	5.61	41.96	20.71	13.93	10.18	21	55	76	
	4	1	5	38	9.41	5.63	5.61	41.96	20.71	13.93	10.18	21	55	76	
		5	5	38	10.94	6.12	6.15	41.96	20.71	13.93	10.18	21	55	76	
	5	1	4	42	9.66	5.91	5.87	43.07	21.38	14.41	10.66	28	71	98	
		5	5	4	42	11.23	6.47	6.48	43.07	21.38	14.41	10.66	28	71	98
	10	2	1	8	26	9.02	5.19	5.20	40.28	19.69	13.20	9.45	7	19	26
5			8	26	10.41	5.43	5.56	40.28	19.69	13.20	9.45	7	19	26	
3		1	7	30	9.15	5.36	5.35	40.68	19.93	13.37	9.62	14	37	52	
		5	7	30	10.59	5.74	5.81	40.68	19.93	13.37	9.62	14	37	52	
4		1	5	38	9.49	5.66	5.64	41.96	20.71	13.93	10.18	21	55	76	
		5	5	38	11.01	6.14	6.18	41.96	20.71	13.93	10.18	21	55	76	
5		1	4	42	9.74	5.94	5.91	43.07	21.38	14.41	10.66	28	71	98	
		5	4	42	11.30	6.50	6.51	43.07	21.38	14.41	10.66	28	71	98	
20		2	1	8	26	9.16	5.22	5.25	40.28	19.69	13.20	9.45	7	19	26
			5	8	26	10.53	5.46	5.60	40.28	19.69	13.20	9.45	7	19	26
	3	1	7	30	9.30	5.41	5.41	40.68	19.93	13.37	9.62	14	37	52	
		5	7	30	10.72	5.77	5.85	40.68	19.93	13.37	9.62	14	37	52	
	4	1	5	38	9.65	5.73	5.71	41.96	20.71	13.93	10.18	21	55	76	
		5	5	38	11.15	6.19	6.23	41.96	20.71	13.93	10.18	21	55	76	
	5	1	4	42	9.90	6.02	5.99	43.07	21.38	14.41	10.66	28	71	98	
		5	4	42	11.44	6.55	6.57	43.07	21.38	14.41	10.66	28	71	98	
	40	2	1	8	26	9.46	5.29	5.34	40.28	19.69	13.20	9.45	7	19	26
			5	8	26	10.78	5.50	5.66	40.28	19.69	13.20	9.45	7	19	26
3		1	7	30	9.61	5.51	5.54	40.68	19.93	13.37	9.62	14	37	52	
		5	7	30	10.98	5.85	5.94	40.68	19.93	13.37	9.62	14	37	52	
4		1	5	38	9.97	5.85	5.85	41.96	20.71	13.93	10.18	21	55	76	
		5	5	38	11.42	6.28	6.34	41.96	20.71	13.93	10.18	21	55	76	
5		1	4	42	10.23	6.16	6.15	43.07	21.38	14.41	10.66	28	71	98	
		5	4	42	11.72	6.66	6.68	43.07	21.38	14.41	10.66	28	71	98	

1000 CHARACTER DATA RECORD 60K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	6	20	11.21	6.80	6.79	53.71	26.25	17.60	12.60	5	14	20	
		5	6	20	12.52	7.04	7.16	53.71	26.25	17.60	12.60	5	14	20	
	3	1	5	22	11.39	7.03	7.00	54.46	26.71	17.93	12.93	10	28	39	
		5	5	22	12.73	7.41	7.47	54.46	26.71	17.93	12.93	10	28	39	
	4	1	4	26	11.67	7.29	7.25	55.57	27.38	18.41	13.41	15	41	57	
		5	4	26	13.07	7.78	7.80	55.57	27.38	18.41	13.41	15	41	57	
	5	1	3	30	12.07	7.72	7.66	57.43	28.51	19.21	14.21	21	53	73	
		5	3	30	13.52	8.28	8.27	57.43	28.51	19.21	14.21	21	53	73	
	10	2	1	6	20	11.28	6.82	6.81	53.71	26.25	17.60	12.60	5	14	20
			5	6	20	12.58	7.06	7.17	53.71	26.25	17.60	12.60	5	14	20
3		1	5	22	11.46	7.05	7.03	54.46	26.71	17.93	12.93	10	28	39	
		5	5	22	12.79	7.43	7.49	54.46	26.71	17.93	12.93	10	28	39	
4		1	4	26	11.74	7.33	7.29	55.57	27.38	18.41	13.41	15	41	57	
		5	4	26	13.13	7.81	7.83	55.57	27.38	18.41	13.41	15	41	57	
5		1	3	30	12.15	7.76	7.70	57.43	28.51	19.21	14.21	21	53	73	
		5	3	30	13.59	8.31	8.30	57.43	28.51	19.21	14.21	21	53	73	
20		2	1	6	20	11.42	6.85	6.86	53.71	26.25	17.60	12.60	5	14	20
			5	6	20	12.70	7.08	7.21	53.71	26.25	17.60	12.60	5	14	20
	3	1	5	22	11.60	7.10	7.09	54.46	26.71	17.93	12.93	10	28	39	
		5	5	22	12.91	7.47	7.53	54.46	26.71	17.93	12.93	10	28	39	
	4	1	4	26	11.89	7.39	7.36	55.57	27.38	18.41	13.41	15	41	57	
		5	4	26	13.25	7.85	7.88	55.57	27.38	18.41	13.41	15	41	57	
	5	1	3	30	12.30	7.83	7.78	57.43	28.51	19.21	14.21	21	53	73	
		5	3	30	13.72	8.36	8.36	57.43	28.51	19.21	14.21	21	53	73	
	40	2	1	6	20	11.69	6.91	6.95	53.71	26.25	17.60	12.60	5	14	20
			5	6	20	12.93	7.13	7.28	53.71	26.25	17.60	12.60	5	14	20
3		1	5	22	11.88	7.21	7.22	54.46	26.71	17.93	12.93	10	28	39	
		5	5	22	13.15	7.54	7.62	54.46	26.71	17.93	12.93	10	28	39	
4		1	4	26	12.18	7.51	7.50	55.57	27.38	18.41	13.41	15	41	57	
		5	4	26	13.50	7.94	7.98	55.57	27.38	18.41	13.41	15	41	57	
5		1	3	30	12.60	7.97	7.94	57.43	28.51	19.21	14.21	21	53	73	
		5	3	30	13.98	8.47	8.48	57.43	28.51	19.21	14.21	21	53	73	

1500 CHARACTER DATA RECORD 60K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	4	12	15.76	10.05	10.02	80.57	39.38	26.41	18.91	3	9	13
		5	4	12	16.89	10.29	10.38	80.57	39.38	26.41	18.91	3	9	13
	3	1	3	16	16.22	10.50	10.44	82.43	40.51	27.21	19.71	7	18	25
		5	3	16	17.45	10.88	10.91	82.43	40.51	27.21	19.71	7	18	25
	4	1	2	20	17.01	11.30	11.21	86.15	42.77	28.82	21.32	10	26	36
5			2	20	18.31	11.79	11.76	86.15	42.77	28.82	21.32	10	26	36
5		1	2	20	17.01	11.34	11.25	86.15	42.77	28.82	21.32	14	35	49
	5	2	20	18.31	11.91	11.86	86.15	42.77	28.82	21.32	14	35	49	
10	2	1	4	12	15.82	10.06	10.04	80.57	39.38	26.41	18.91	3	9	13
		5	4	12	16.94	10.30	10.40	80.57	39.38	26.41	18.91	3	9	13
	3	1	3	16	16.29	10.52	10.47	82.43	40.51	27.21	19.71	7	18	25
		5	3	16	17.50	10.90	10.93	82.43	40.51	27.21	19.71	7	18	25
	4	1	2	20	17.07	11.33	11.24	86.15	42.77	28.82	21.32	10	26	36
5			2	20	18.37	11.81	11.78	86.15	42.77	28.82	21.32	10	26	36
5		1	2	20	17.07	11.38	11.29	86.15	42.77	28.82	21.32	14	35	49
	5	2	20	18.37	11.93	11.89	86.15	42.77	28.82	21.32	14	35	49	
20	2	1	4	12	15.94	10.10	10.08	80.57	39.38	26.41	18.91	3	9	13
		5	4	12	17.04	10.33	10.43	80.57	39.38	26.41	18.91	3	9	13
	3	1	3	16	16.41	10.58	10.53	82.43	40.51	27.21	19.71	7	18	25
		5	3	16	17.61	10.94	10.97	82.43	40.51	27.21	19.71	7	18	25
	4	1	2	20	17.21	11.39	11.31	86.15	42.77	28.82	21.32	10	26	36
5			2	20	18.49	11.85	11.83	86.15	42.77	28.82	21.32	10	26	36
5		1	2	20	17.21	11.45	11.37	86.15	42.77	28.82	21.32	14	35	49
	5	2	20	18.49	11.99	11.95	86.15	42.77	28.82	21.32	14	35	49	
40	2	1	4	12	16.18	10.16	10.18	80.57	39.38	26.41	18.91	3	9	13
		5	4	12	17.24	10.37	10.50	80.57	39.38	26.41	18.91	3	9	13
	3	1	3	16	16.67	10.68	10.66	82.43	40.51	27.21	19.71	7	18	25
		5	3	16	17.83	11.01	11.06	82.43	40.51	27.21	19.71	7	18	25
	4	1	2	20	17.49	11.51	11.45	86.15	42.77	28.82	21.32	10	26	36
5			2	20	18.72	11.95	11.94	86.15	42.77	28.82	21.32	10	26	36
5		1	2	20	17.49	11.60	11.53	86.15	42.77	28.82	21.32	14	35	49
	5	2	20	18.72	12.10	12.07	86.15	42.77	28.82	21.32	14	35	49	

2000 CHARACTER DATA RECORD 60K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	3	10	20.44	13.29	13.24	107.43	52.51	35.21	25.21	2	7	10
		5	3	10	21.50	13.54	13.60	107.43	52.51	35.21	25.21	2	7	10
	3	1	2	14	21.26	14.12	14.03	111.15	54.77	36.82	26.82	5	13	19
		5	2	14	22.44	14.51	14.50	111.15	54.77	36.82	26.82	5	13	19
	4	1	2	14	21.26	14.16	14.07	111.15	54.77	36.82	26.82	7	20	28
5			2	14	22.44	14.65	14.62	111.15	54.77	36.82	26.82	7	20	28
5		1	1	18	23.45	16.48	16.29	122.30	61.55	41.65	31.65	10	25	33
	5	1	18	24.72	17.05	16.91	122.30	61.55	41.65	31.65	10	25	33	
10	2	1	3	10	20.49	13.31	13.26	107.43	52.51	35.21	25.21	2	7	10
		5	3	10	21.55	13.55	13.62	107.43	52.51	35.21	25.21	2	7	10
	3	1	2	14	21.33	14.15	14.06	111.15	54.77	36.82	26.82	5	13	19
		5	2	14	22.50	14.52	14.52	111.15	54.77	36.82	26.82	5	13	19
	4	1	2	14	21.33	14.19	14.10	111.15	54.77	36.82	26.82	7	20	28
5			2	14	22.50	14.67	14.64	111.15	54.77	36.82	26.82	7	20	28
5		1	1	18	23.52	16.52	16.33	122.30	61.55	41.65	31.65	10	25	33
	5	1	18	24.78	17.08	16.94	122.30	61.55	41.65	31.65	10	25	33	
20	2	1	3	10	20.61	13.34	13.31	107.43	52.51	35.21	25.21	2	7	10
		5	3	10	21.64	13.57	13.66	107.43	52.51	35.21	25.21	2	7	10
	3	1	2	14	21.45	14.20	14.12	111.15	54.77	36.82	26.82	5	13	19
		5	2	14	22.60	14.56	14.56	111.15	54.77	36.82	26.82	5	13	19
	4	1	2	14	21.45	14.26	14.17	111.15	54.77	36.82	26.82	7	20	28
5			2	14	22.60	14.72	14.69	111.15	54.77	36.82	26.82	7	20	28
5		1	1	18	23.65	16.60	16.41	122.30	61.55	41.65	31.65	10	25	33
	5	1	18	24.89	17.13	16.99	122.30	61.55	41.65	31.65	10	25	33	
40	2	1	3	10	20.83	13.40	13.40	107.43	52.51	35.21	25.21	2	7	10
		5	3	10	21.83	13.62	13.73	107.43	52.51	35.21	25.21	2	7	10
	3	1	2	14	21.70	14.30	14.25	111.15	54.77	36.82	26.82	5	13	19
		5	2	14	22.81	14.63	14.65	111.15	54.77	36.82	26.82	5	13	19
	4	1	2	14	21.70	14.38	14.31	111.15	54.77	36.82	26.82	7	20	28
5			2	14	22.81	14.81	14.80	111.15	54.77	36.82	26.82	7	20	28
5		1	1	18	23.92	16.74	16.57	122.30	61.55	41.65	31.65	10	25	33
	5	1	18	25.12	17.24	17.11	122.30	61.55	41.65	31.65	10	25	33	

20 CHARACTER DATA RECORD 80K 7010

CW LNG	MRG ORD	NO. CF	B G		PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF			
					MILLISECONDS/RECORD	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	RECORDS IN THOUSANDS	200 CPI	556 CPI
5	2	1	300	1340	3.62	.44	.47	1.07	.52	.35	.25	269	717	1003	
		5	300	1340	6.42	.68	.84	1.07	.52	.35	.25	269	717	1003	
	3	1	300	1340	3.62	.51	.53	1.07	.52	.35	.25	538	1434	2007	
		5	300	1340	6.42	.90	1.00	1.07	.52	.35	.25	538	1434	2007	
	4	1	300	1340	3.62	.55	.57	1.07	.52	.35	.25	807	2152	3010	
		5	300	1340	6.42	1.04	1.12	1.07	.52	.35	.25	807	2152	3010	
	5	1	258	1452	3.66	.60	.62	1.08	.53	.35	.25	1072	2839	3956	
		5	258	1452	6.48	1.17	1.23	1.08	.53	.35	.25	1072	2839	3956	
	10	2	1	300	1340	3.76	.45	.49	1.07	.52	.35	.25	269	717	1003
			5	300	1340	6.55	.69	.85	1.07	.52	.35	.25	269	717	1003
3		1	300	1340	3.76	.54	.57	1.07	.52	.35	.25	538	1434	2007	
		5	300	1340	6.55	.92	1.02	1.07	.52	.35	.25	538	1434	2007	
4		1	300	1340	3.76	.59	.61	1.07	.52	.35	.25	807	2152	3010	
		5	300	1340	6.55	1.07	1.15	1.07	.52	.35	.25	807	2152	3010	
5		1	258	1452	3.80	.64	.66	1.08	.53	.35	.25	1072	2839	3956	
		5	258	1452	6.61	1.19	1.26	1.08	.53	.35	.25	1072	2839	3956	

30 CHARACTER DATA RECORD 80K 7010

CW LNG	MRG ORD	NO. CF	B G		PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF			
					MILLISECONDS/RECORD	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	RECORDS IN THOUSANDS	200 CPI	556 CPI
5	2	1	200	1004	3.60	.50	.54	1.61	.78	.52	.37	179	478	669	
		5	200	1004	6.30	.75	.90	1.61	.78	.52	.37	179	478	669	
	3	1	200	1004	3.60	.58	.60	1.61	.78	.52	.37	359	956	1338	
		5	200	1004	6.30	.96	1.06	1.61	.78	.52	.37	359	956	1338	
	4	1	200	1004	3.60	.62	.64	1.61	.78	.52	.37	538	1434	2007	
		5	200	1004	6.30	1.11	1.18	1.61	.78	.52	.37	538	1434	2007	
	5	1	172	1088	3.63	.67	.68	1.62	.79	.53	.38	715	1893	2637	
		5	172	1088	6.36	1.23	1.29	1.62	.79	.53	.38	715	1893	2637	
	10	2	1	200	1004	3.74	.52	.56	1.61	.78	.52	.37	179	478	669
			5	200	1004	6.41	.76	.92	1.61	.78	.52	.37	179	478	669
3		1	200	1004	3.74	.60	.63	1.61	.78	.52	.37	359	956	1338	
		5	200	1004	6.41	.98	1.09	1.61	.78	.52	.37	359	956	1338	
4		1	200	1004	3.74	.65	.67	1.61	.78	.52	.37	538	1434	2007	
		5	200	1004	6.41	1.13	1.21	1.61	.78	.52	.37	538	1434	2007	
5		1	172	1088	3.77	.71	.72	1.62	.79	.53	.38	715	1893	2637	
		5	172	1088	6.48	1.26	1.32	1.62	.79	.53	.38	715	1893	2637	
20		2	1	200	1004	4.01	.55	.61	1.61	.78	.52	.37	179	478	669
			5	200	1004	6.65	.78	.95	1.61	.78	.52	.37	179	478	669
	3	1	200	1004	4.01	.65	.69	1.61	.78	.52	.37	359	956	1338	
		5	200	1004	6.65	1.02	1.13	1.61	.78	.52	.37	359	956	1338	
	4	1	200	1004	4.01	.71	.74	1.61	.78	.52	.37	538	1434	2007	
		5	200	1004	6.65	1.18	1.26	1.61	.78	.52	.37	538	1434	2007	
	5	1	172	1088	4.05	.78	.80	1.62	.79	.53	.38	715	1893	2637	
		5	172	1088	6.72	1.31	1.38	1.62	.79	.53	.38	715	1893	2637	

40 CHARACTER DATA RECORD 80K 7010

CW LNG	MRG ORD	NO. CF	B G		PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF			
					MILLISECONDS/RECORD	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	RECORDS IN THOUSANDS	200 CPI	556 CPI
5	2	1	150	804	3.60	.57	.60	2.14	1.05	.70	.50	134	358	501	
		5	150	804	6.22	.81	.97	2.14	1.05	.70	.50	134	358	501	
	3	1	150	804	3.60	.64	.66	2.14	1.05	.70	.50	269	717	1003	
		5	150	804	6.22	1.03	1.13	2.14	1.05	.70	.50	269	717	1003	
	4	1	150	804	3.60	.68	.70	2.14	1.05	.70	.50	403	1076	1505	
		5	150	804	6.22	1.17	1.25	2.14	1.05	.70	.50	403	1076	1505	
	5	1	129	870	3.64	.73	.75	2.17	1.06	.71	.51	536	1419	1978	
		5	129	870	6.28	1.30	1.36	2.17	1.06	.71	.51	536	1419	1978	
	10	2	1	150	804	3.74	.58	.62	2.14	1.05	.70	.50	134	358	501
			5	150	804	6.34	.82	.98	2.14	1.05	.70	.50	134	358	501
3		1	150	804	3.74	.67	.69	2.14	1.05	.70	.50	269	717	1003	
		5	150	804	6.34	1.05	1.15	2.14	1.05	.70	.50	269	717	1003	
4		1	150	804	3.74	.72	.73	2.14	1.05	.70	.50	403	1076	1505	
		5	150	804	6.34	1.19	1.27	2.14	1.05	.70	.50	403	1076	1505	
5		1	129	870	3.77	.77	.79	2.17	1.06	.71	.51	536	1419	1978	
		5	129	870	6.40	1.33	1.39	2.17	1.06	.71	.51	536	1419	1978	
20		2	1	150	804	4.00	.61	.67	2.14	1.05	.70	.50	134	358	501
			5	150	804	6.57	.85	1.02	2.14	1.05	.70	.50	134	358	501
	3	1	150	804	4.00	.72	.76	2.14	1.05	.70	.50	269	717	1003	
		5	150	804	6.57	1.08	1.20	2.14	1.05	.70	.50	269	717	1003	
	4	1	150	804	4.00	.78	.80	2.14	1.05	.70	.50	403	1076	1505	
		5	150	804	6.57	1.24	1.33	2.14	1.05	.70	.50	403	1076	1505	
	5	1	129	870	4.05	.85	.87	2.17	1.06	.71	.51	536	1419	1978	
		5	129	870	6.64	1.38	1.45	2.17	1.06	.71	.51	536	1419	1978	

50 CHARACTER DATA RECORD 80K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	120	670	3.62	.63	.67	2.68	1.31	.88	.63	107	286	401	
		5	120	670	6.18	.88	1.03	2.68	1.31	.88	.63	107	286	401	
	3	1	120	670	3.62	.71	.73	2.68	1.31	.88	.63	215	573	802	
		5	120	670	6.18	1.09	1.19	2.68	1.31	.88	.63	215	573	802	
	4	1	120	670	3.62	.75	.76	2.68	1.31	.88	.63	323	860	1204	
		5	120	670	6.18	1.24	1.31	2.68	1.31	.88	.63	323	860	1204	
	5	1	103	726	3.66	.80	.81	2.71	1.33	.89	.64	429	1135	1582	
		5	103	726	6.24	1.37	1.43	2.71	1.33	.89	.64	429	1135	1582	
	10	2	1	120	670	3.75	.65	.69	2.68	1.31	.88	.63	107	286	401
			5	120	670	6.29	.89	1.05	2.68	1.31	.88	.63	107	286	401
3		1	120	670	3.75	.73	.76	2.68	1.31	.88	.63	215	573	802	
		5	120	670	6.29	1.11	1.22	2.68	1.31	.88	.63	215	573	802	
4		1	120	670	3.75	.78	.80	2.68	1.31	.88	.63	323	860	1204	
		5	120	670	6.29	1.26	1.34	2.68	1.31	.88	.63	323	860	1204	
5		1	103	726	3.79	.84	.85	2.71	1.33	.89	.64	429	1135	1582	
		5	103	726	6.36	1.39	1.45	2.71	1.33	.89	.64	429	1135	1582	
20		2	1	120	670	4.02	.68	.73	2.68	1.31	.88	.63	107	286	401
			5	120	670	6.52	.91	1.08	2.68	1.31	.88	.63	107	286	401
	3	1	120	670	4.02	.78	.82	2.68	1.31	.88	.63	215	573	802	
		5	120	670	6.52	1.15	1.26	2.68	1.31	.88	.63	215	573	802	
	4	1	120	670	4.02	.84	.87	2.68	1.31	.88	.63	323	860	1204	
		5	120	670	6.52	1.31	1.39	2.68	1.31	.88	.63	323	860	1204	
	5	1	103	726	4.06	.91	.93	2.71	1.33	.89	.64	429	1135	1582	
		5	103	726	6.59	1.45	1.51	2.71	1.33	.89	.64	429	1135	1582	
	40	2	1	120	670	4.54	.74	.83	2.68	1.31	.88	.63	107	286	401
			5	120	670	6.97	.96	1.15	2.68	1.31	.88	.63	107	286	401
3		1	120	670	4.54	.89	.94	2.68	1.31	.88	.63	215	573	802	
		5	120	670	6.97	1.22	1.35	2.68	1.31	.88	.63	215	573	802	
4		1	120	670	4.54	.97	1.01	2.68	1.31	.88	.63	323	860	1204	
		5	120	670	6.97	1.40	1.49	2.68	1.31	.88	.63	323	860	1204	
5		1	103	726	4.59	1.06	1.09	2.71	1.33	.89	.64	429	1135	1582	
		5	103	726	7.05	1.55	1.63	2.71	1.33	.89	.64	429	1135	1582	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	100	574	3.65	.70	.73	3.22	1.57	1.05	.75	89	239	334	
		5	100	574	6.15	.94	1.09	3.22	1.57	1.05	.75	89	239	334	
	3	1	100	574	3.65	.77	.79	3.22	1.57	1.05	.75	179	478	669	
		5	100	574	6.15	1.16	1.26	3.22	1.57	1.05	.75	179	478	669	
	4	1	100	574	3.65	.81	.83	3.22	1.57	1.05	.75	269	717	1003	
		5	100	574	6.15	1.30	1.38	3.22	1.57	1.05	.75	269	717	1003	
	5	1	86	622	3.69	.87	.88	3.25	1.59	1.07	.77	357	946	1318	
		5	86	622	6.22	1.43	1.49	3.25	1.59	1.07	.77	357	946	1318	
	10	2	1	100	574	3.78	.71	.75	3.22	1.57	1.05	.75	89	239	334
			5	100	574	6.26	.95	1.11	3.22	1.57	1.05	.75	89	239	334
3		1	100	574	3.78	.80	.82	3.22	1.57	1.05	.75	179	478	669	
		5	100	574	6.26	1.17	1.28	3.22	1.57	1.05	.75	179	478	669	
4		1	100	574	3.78	.85	.86	3.22	1.57	1.05	.75	269	717	1003	
		5	100	574	6.26	1.32	1.40	3.22	1.57	1.05	.75	269	717	1003	
5		1	86	622	3.82	.90	.92	3.25	1.59	1.07	.77	357	946	1318	
		5	86	622	6.33	1.46	1.52	3.25	1.59	1.07	.77	357	946	1318	
20		2	1	100	574	4.04	.74	.80	3.22	1.57	1.05	.75	89	239	334
			5	100	574	6.49	.98	1.15	3.22	1.57	1.05	.75	89	239	334
	3	1	100	574	4.04	.85	.89	3.22	1.57	1.05	.75	179	478	669	
		5	100	574	6.49	1.21	1.33	3.22	1.57	1.05	.75	179	478	669	
	4	1	100	574	4.04	.91	.93	3.22	1.57	1.05	.75	269	717	1003	
		5	100	574	6.49	1.37	1.45	3.22	1.57	1.05	.75	269	717	1003	
	5	1	86	622	4.08	.98	1.00	3.25	1.59	1.07	.77	357	946	1318	
		5	86	622	6.56	1.51	1.58	3.25	1.59	1.07	.77	357	946	1318	
	40	2	1	100	574	4.55	.81	.89	3.22	1.57	1.05	.75	89	239	334
			5	100	574	6.93	1.02	1.22	3.22	1.57	1.05	.75	89	239	334
3		1	100	574	4.55	.95	1.01	3.22	1.57	1.05	.75	179	478	669	
		5	100	574	6.93	1.29	1.41	3.22	1.57	1.05	.75	179	478	669	
4		1	100	574	4.55	1.03	1.07	3.22	1.57	1.05	.75	269	717	1003	
		5	100	574	6.93	1.46	1.56	3.22	1.57	1.05	.75	269	717	1003	
5		1	86	622	4.60	1.12	1.16	3.25	1.59	1.07	.77	357	946	1318	
		5	86	622	7.01	1.62	1.70	3.25	1.59	1.07	.77	357	946	1318	



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CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS					
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	85	504	3.70	.76	.79	3.76	1.83	1.23	.88	76	204	286	
		5	85	504	6.15	1.01	1.16	3.76	1.83	1.23	.88	76	204	286	
	3	1	85	504	3.70	.84	.86	3.76	1.83	1.23	.88	153	409	573	
		5	85	504	6.15	1.22	1.32	3.76	1.83	1.23	.88	153	409	573	
	4	1	85	504	3.70	.88	.89	3.76	1.83	1.23	.88	230	614	859	
		5	85	504	6.15	1.37	1.44	3.76	1.83	1.23	.88	230	614	859	
	5	1	73	546	3.74	.93	.94	3.80	1.86	1.25	.90	306	810	1129	
		5	73	546	6.22	1.50	1.56	3.80	1.86	1.25	.90	306	810	1129	
	10	2	1	85	504	3.82	.78	.82	3.76	1.83	1.23	.88	76	204	286
			5	85	504	6.26	1.02	1.18	3.76	1.83	1.23	.88	76	204	286
3		1	85	504	3.82	.86	.89	3.76	1.83	1.23	.88	153	409	573	
		5	85	504	6.26	1.24	1.35	3.76	1.83	1.23	.88	153	409	573	
4		1	85	504	3.82	.91	.93	3.76	1.83	1.23	.88	230	614	859	
		5	85	504	6.26	1.39	1.47	3.76	1.83	1.23	.88	230	614	859	
5		1	73	546	3.86	.97	.98	3.80	1.86	1.25	.90	306	810	1129	
		5	73	546	6.33	1.52	1.59	3.80	1.86	1.25	.90	306	810	1129	
20		2	1	85	504	4.07	.81	.86	3.76	1.83	1.23	.88	76	204	286
			5	85	504	6.47	1.04	1.21	3.76	1.83	1.23	.88	76	204	286
	3	1	85	504	4.07	.91	.95	3.76	1.83	1.23	.88	153	409	573	
		5	85	504	6.47	1.28	1.39	3.76	1.83	1.23	.88	153	409	573	
	4	1	85	504	4.07	.97	1.00	3.76	1.83	1.23	.88	230	614	859	
		5	85	504	6.47	1.44	1.52	3.76	1.83	1.23	.88	230	614	859	
	5	1	73	546	4.12	1.04	1.06	3.80	1.86	1.25	.90	306	810	1129	
		5	73	546	6.55	1.58	1.65	3.80	1.86	1.25	.90	306	810	1129	
	40	2	1	85	504	4.58	.87	.96	3.76	1.83	1.23	.88	76	204	286
			5	85	504	6.91	1.09	1.28	3.76	1.83	1.23	.88	76	204	286
3		1	85	504	4.58	1.02	1.07	3.76	1.83	1.23	.88	153	409	573	
		5	85	504	6.91	1.35	1.48	3.76	1.83	1.23	.88	153	409	573	
4		1	85	504	4.58	1.10	1.14	3.76	1.83	1.23	.88	230	614	859	
		5	85	504	6.91	1.53	1.62	3.76	1.83	1.23	.88	230	614	859	
5		1	73	546	4.63	1.19	1.22	3.80	1.86	1.25	.90	306	810	1129	
		5	73	546	6.99	1.69	1.76	3.80	1.86	1.25	.90	306	810	1129	

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CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS					
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	75	446	3.74	.83	.86	4.29	2.10	1.40	1.00	67	179	250	
		5	75	446	6.15	1.07	1.22	4.29	2.10	1.40	1.00	67	179	250	
	3	1	75	446	3.74	.90	.92	4.29	2.10	1.40	1.00	134	358	501	
		5	75	446	6.15	1.29	1.39	4.29	2.10	1.40	1.00	134	358	501	
	4	1	75	446	3.74	.94	.96	4.29	2.10	1.40	1.00	201	538	752	
		5	75	446	6.15	1.43	1.51	4.29	2.10	1.40	1.00	201	538	752	
	5	1	64	484	3.78	1.00	1.01	4.34	2.13	1.43	1.03	268	709	988	
		5	64	484	6.22	1.56	1.62	4.34	2.13	1.43	1.03	268	709	988	
	10	2	1	75	446	3.86	.84	.88	4.29	2.10	1.40	1.00	67	179	250
			5	75	446	6.26	1.08	1.24	4.29	2.10	1.40	1.00	67	179	250
3		1	75	446	3.86	.93	.95	4.29	2.10	1.40	1.00	134	358	501	
		5	75	446	6.26	1.30	1.41	4.29	2.10	1.40	1.00	134	358	501	
4		1	75	446	3.86	.97	.99	4.29	2.10	1.40	1.00	201	538	752	
		5	75	446	6.26	1.45	1.53	4.29	2.10	1.40	1.00	201	538	752	
5		1	64	484	3.91	1.04	1.05	4.34	2.13	1.43	1.03	268	709	988	
		5	64	484	6.33	1.59	1.65	4.34	2.13	1.43	1.03	268	709	988	
20		2	1	75	446	4.11	.87	.93	4.29	2.10	1.40	1.00	67	179	250
			5	75	446	6.47	1.11	1.28	4.29	2.10	1.40	1.00	67	179	250
	3	1	75	446	4.11	.98	1.01	4.29	2.10	1.40	1.00	134	358	501	
		5	75	446	6.47	1.34	1.45	4.29	2.10	1.40	1.00	134	358	501	
	4	1	75	446	4.11	1.04	1.06	4.29	2.10	1.40	1.00	201	538	752	
		5	75	446	6.47	1.50	1.58	4.29	2.10	1.40	1.00	201	538	752	
	5	1	64	484	4.16	1.11	1.13	4.34	2.13	1.43	1.03	268	709	988	
		5	64	484	6.55	1.64	1.71	4.34	2.13	1.43	1.03	268	709	988	
	40	2	1	75	446	4.61	.94	1.02	4.29	2.10	1.40	1.00	67	179	250
			5	75	446	6.90	1.15	1.34	4.29	2.10	1.40	1.00	67	179	250
3		1	75	446	4.61	1.08	1.14	4.29	2.10	1.40	1.00	134	358	501	
		5	75	446	6.90	1.42	1.54	4.29	2.10	1.40	1.00	134	358	501	
4		1	75	446	4.61	1.16	1.20	4.29	2.10	1.40	1.00	201	538	752	
		5	75	446	6.90	1.59	1.69	4.29	2.10	1.40	1.00	201	538	752	
5		1	64	484	4.66	1.26	1.29	4.34	2.13	1.43	1.03	268	709	988	
		5	64	484	6.98	1.75	1.83	4.34	2.13	1.43	1.03	268	709	988	

90 CHARACTER DATA RECORD 80K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	66	404	3.79	.89	.92	4.83	2.36	1.58	1.13	59	159	222	
		5	66	404	6.17	1.14	1.29	4.83	2.36	1.58	1.13	59	159	222	
	3	1	66	404	3.79	.97	.99	4.83	2.36	1.58	1.13	119	318	445	
		5	66	404	6.17	1.35	1.45	4.83	2.36	1.58	1.13	119	318	445	
	4	1	66	404	3.79	1.01	1.02	4.83	2.36	1.58	1.13	179	477	668	
		5	66	404	6.17	1.50	1.57	4.83	2.36	1.58	1.13	179	477	668	
	5	1	57	436	3.84	1.07	1.08	4.89	2.39	1.60	1.15	238	630	878	
		5	57	436	6.24	1.63	1.69	4.89	2.39	1.60	1.15	238	630	878	
	10	2	1	66	404	3.92	.91	.95	4.83	2.36	1.58	1.13	59	159	222
			5	66	404	6.27	1.15	1.31	4.83	2.36	1.58	1.13	59	159	222
3		1	66	404	3.92	.99	1.02	4.83	2.36	1.58	1.13	119	318	445	
		5	66	404	6.27	1.37	1.47	4.83	2.36	1.58	1.13	119	318	445	
4		1	66	404	3.92	1.04	1.06	4.83	2.36	1.58	1.13	179	477	668	
		5	66	404	6.27	1.52	1.60	4.83	2.36	1.58	1.13	179	477	668	
5		1	57	436	3.96	1.10	1.12	4.89	2.39	1.60	1.15	238	630	878	
		5	57	436	6.34	1.66	1.72	4.89	2.39	1.60	1.15	238	630	878	
20		2	1	66	404	4.16	.94	.99	4.83	2.36	1.58	1.13	59	159	222
			5	66	404	6.49	1.17	1.34	4.83	2.36	1.58	1.13	59	159	222
	3	1	66	404	4.16	1.04	1.08	4.83	2.36	1.58	1.13	119	318	445	
		5	66	404	6.49	1.41	1.52	4.83	2.36	1.58	1.13	119	318	445	
	4	1	66	404	4.16	1.10	1.13	4.83	2.36	1.58	1.13	179	477	668	
		5	66	404	6.49	1.57	1.65	4.83	2.36	1.58	1.13	179	477	668	
	5	1	57	436	4.21	1.18	1.20	4.89	2.39	1.60	1.15	238	630	878	
		5	57	436	6.56	1.71	1.78	4.89	2.39	1.60	1.15	238	630	878	
	40	2	1	66	404	4.65	1.00	1.09	4.83	2.36	1.58	1.13	59	159	222
			5	66	404	6.91	1.22	1.41	4.83	2.36	1.58	1.13	59	159	222
3		1	66	404	4.65	1.15	1.20	4.83	2.36	1.58	1.13	119	318	445	
		5	66	404	6.91	1.48	1.61	4.83	2.36	1.58	1.13	119	318	445	
4		1	66	404	4.65	1.23	1.27	4.83	2.36	1.58	1.13	179	477	668	
		5	66	404	6.91	1.66	1.75	4.83	2.36	1.58	1.13	179	477	668	
5		1	57	436	4.70	1.32	1.35	4.89	2.39	1.60	1.15	238	630	878	
		5	57	436	6.98	1.82	1.89	4.89	2.39	1.60	1.15	238	630	878	

100 CHARACTER DATA RECORD 80K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	60	364	3.85	.96	.99	5.37	2.62	1.76	1.26	53	143	200	
		5	60	364	6.18	1.20	1.35	5.37	2.62	1.76	1.26	53	143	200	
	3	1	60	364	3.85	1.03	1.05	5.37	2.62	1.76	1.26	107	286	401	
		5	60	364	6.18	1.42	1.52	5.37	2.62	1.76	1.26	107	286	401	
	4	1	60	364	3.85	1.07	1.09	5.37	2.62	1.76	1.26	161	430	602	
		5	60	364	6.18	1.56	1.64	5.37	2.62	1.76	1.26	161	430	602	
	5	1	51	398	3.90	1.13	1.14	5.43	2.66	1.78	1.28	214	567	790	
		5	51	398	6.26	1.70	1.75	5.43	2.66	1.78	1.28	214	567	790	
	10	2	1	60	364	3.97	.97	1.01	5.37	2.62	1.76	1.26	53	143	200
			5	60	364	6.29	1.21	1.37	5.37	2.62	1.76	1.26	53	143	200
3		1	60	364	3.97	1.06	1.08	5.37	2.62	1.76	1.26	107	286	401	
		5	60	364	6.29	1.43	1.54	5.37	2.62	1.76	1.26	107	286	401	
4		1	60	364	3.97	1.10	1.12	5.37	2.62	1.76	1.26	161	430	602	
		5	60	364	6.29	1.58	1.66	5.37	2.62	1.76	1.26	161	430	602	
5		1	51	398	4.02	1.17	1.18	5.43	2.66	1.78	1.28	214	567	790	
		5	51	398	6.37	1.72	1.78	5.43	2.66	1.78	1.28	214	567	790	
20		2	1	60	364	4.21	1.00	1.06	5.37	2.62	1.76	1.26	53	143	200
			5	60	364	6.49	1.24	1.40	5.37	2.62	1.76	1.26	53	143	200
	3	1	60	364	4.21	1.11	1.14	5.37	2.62	1.76	1.26	107	286	401	
		5	60	364	6.49	1.47	1.58	5.37	2.62	1.76	1.26	107	286	401	
	4	1	60	364	4.21	1.17	1.19	5.37	2.62	1.76	1.26	161	430	602	
		5	60	364	6.49	1.63	1.71	5.37	2.62	1.76	1.26	161	430	602	
	5	1	51	398	4.26	1.24	1.26	5.43	2.66	1.78	1.28	214	567	790	
		5	51	398	6.58	1.78	1.84	5.43	2.66	1.78	1.28	214	567	790	
	40	2	1	60	364	4.69	1.06	1.15	5.37	2.62	1.76	1.26	53	143	200
			5	60	364	6.91	1.28	1.47	5.37	2.62	1.76	1.26	53	143	200
3		1	60	364	4.69	1.21	1.27	5.37	2.62	1.76	1.26	107	286	401	
		5	60	364	6.91	1.55	1.67	5.37	2.62	1.76	1.26	107	286	401	
4		1	60	364	4.69	1.29	1.33	5.37	2.62	1.76	1.26	161	430	602	
		5	60	364	6.91	1.72	1.82	5.37	2.62	1.76	1.26	161	430	602	
5		1	51	398	4.75	1.39	1.42	5.43	2.66	1.78	1.28	214	567	790	
		5	51	398	7.00	1.88	1.96	5.43	2.66	1.78	1.28	214	567	790	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					MILLISECONDS/RECORD PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	50	308	3.97	1.09	1.12	6.44	3.15	2.11	1.51	44	119	167	
		5	50	308	6.25	1.33	1.48	6.44	3.15	2.11	1.51	44	119	167	
	3	1	50	308	3.97	1.16	1.18	6.44	3.15	2.11	1.51	89	239	334	
		5	50	308	6.25	1.55	1.65	6.44	3.15	2.11	1.51	89	239	334	
	4	1	50	308	3.97	1.20	1.22	6.44	3.15	2.11	1.51	134	358	501	
		5	50	308	6.25	1.69	1.76	6.44	3.15	2.11	1.51	134	358	501	
	5	1	43	334	4.01	1.26	1.27	6.51	3.19	2.14	1.54	178	473	659	
		5	43	334	6.32	1.83	1.89	6.51	3.19	2.14	1.54	178	473	659	
	10	2	1	50	308	4.08	1.10	1.14	6.44	3.15	2.11	1.51	44	119	167
			5	50	308	6.35	1.34	1.50	6.44	3.15	2.11	1.51	44	119	167
3		1	50	308	4.08	1.19	1.21	6.44	3.15	2.11	1.51	89	239	334	
		5	50	308	6.35	1.56	1.67	6.44	3.15	2.11	1.51	89	239	334	
4		1	50	308	4.08	1.23	1.25	6.44	3.15	2.11	1.51	134	358	501	
		5	50	308	6.35	1.71	1.79	6.44	3.15	2.11	1.51	134	358	501	
5		1	43	334	4.13	1.30	1.31	6.51	3.19	2.14	1.54	178	473	659	
		5	43	334	6.42	1.85	1.91	6.51	3.19	2.14	1.54	178	473	659	
20		2	1	50	308	4.32	1.13	1.19	6.44	3.15	2.11	1.51	44	119	167
			5	50	308	6.55	1.36	1.53	6.44	3.15	2.11	1.51	44	119	167
	3	1	50	308	4.32	1.24	1.27	6.44	3.15	2.11	1.51	89	239	334	
		5	50	308	6.55	1.60	1.71	6.44	3.15	2.11	1.51	89	239	334	
	4	1	50	308	4.32	1.30	1.32	6.44	3.15	2.11	1.51	134	358	501	
		5	50	308	6.55	1.76	1.84	6.44	3.15	2.11	1.51	134	358	501	
	5	1	43	334	4.37	1.37	1.39	6.51	3.19	2.14	1.54	178	473	659	
		5	43	334	6.62	1.91	1.97	6.51	3.19	2.14	1.54	178	473	659	
	40	2	1	50	308	4.79	1.19	1.28	6.44	3.15	2.11	1.51	44	119	167
			5	50	308	6.95	1.41	1.60	6.44	3.15	2.11	1.51	44	119	167
3		1	50	308	4.79	1.34	1.40	6.44	3.15	2.11	1.51	89	239	334	
		5	50	308	6.95	1.68	1.80	6.44	3.15	2.11	1.51	89	239	334	
4		1	50	308	4.79	1.42	1.46	6.44	3.15	2.11	1.51	134	358	501	
		5	50	308	6.95	1.85	1.94	6.44	3.15	2.11	1.51	134	358	501	
5		1	43	334	4.85	1.52	1.55	6.51	3.19	2.14	1.54	178	473	659	
		5	43	334	7.04	2.02	2.09	6.51	3.19	2.14	1.54	178	473	659	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					MILLISECONDS/RECORD PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	42	270	4.11	1.22	1.25	7.53	3.68	2.46	1.76	38	102	143	
		5	42	270	6.34	1.46	1.61	7.53	3.68	2.46	1.76	38	102	143	
	3	1	42	270	4.11	1.29	1.31	7.53	3.68	2.46	1.76	76	204	286	
		5	42	270	6.34	1.68	1.78	7.53	3.68	2.46	1.76	76	204	286	
	4	1	42	270	4.11	1.34	1.35	7.53	3.68	2.46	1.76	115	307	429	
		5	42	270	6.34	1.82	1.90	7.53	3.68	2.46	1.76	115	307	429	
	5	1	36	292	4.15	1.40	1.41	7.61	3.73	2.50	1.80	153	404	563	
		5	36	292	6.41	1.96	2.02	7.61	3.73	2.50	1.80	153	404	563	
	10	2	1	42	270	4.22	1.23	1.27	7.53	3.68	2.46	1.76	38	102	143
			5	42	270	6.44	1.47	1.63	7.53	3.68	2.46	1.76	38	102	143
3		1	42	270	4.22	1.32	1.34	7.53	3.68	2.46	1.76	76	204	286	
		5	42	270	6.44	1.70	1.80	7.53	3.68	2.46	1.76	76	204	286	
4		1	42	270	4.22	1.37	1.38	7.53	3.68	2.46	1.76	115	307	429	
		5	42	270	6.44	1.85	1.92	7.53	3.68	2.46	1.76	115	307	429	
5		1	36	292	4.27	1.44	1.45	7.61	3.73	2.50	1.80	153	404	563	
		5	36	292	6.51	1.99	2.05	7.61	3.73	2.50	1.80	153	404	563	
20		2	1	42	270	4.45	1.26	1.32	7.53	3.68	2.46	1.76	38	102	143
			5	42	270	6.63	1.50	1.66	7.53	3.68	2.46	1.76	38	102	143
	3	1	42	270	4.45	1.37	1.40	7.53	3.68	2.46	1.76	76	204	286	
		5	42	270	6.63	1.73	1.84	7.53	3.68	2.46	1.76	76	204	286	
	4	1	42	270	4.45	1.43	1.45	7.53	3.68	2.46	1.76	115	307	429	
		5	42	270	6.63	1.89	1.97	7.53	3.68	2.46	1.76	115	307	429	
	5	1	36	292	4.50	1.51	1.53	7.61	3.73	2.50	1.80	153	404	563	
		5	36	292	6.71	2.04	2.11	7.61	3.73	2.50	1.80	153	404	563	
	40	2	1	42	270	4.91	1.33	1.41	7.53	3.68	2.46	1.76	38	102	143
			5	42	270	7.03	1.54	1.73	7.53	3.68	2.46	1.76	38	102	143
3		1	42	270	4.91	1.47	1.53	7.53	3.68	2.46	1.76	76	204	286	
		5	42	270	7.03	1.81	1.93	7.53	3.68	2.46	1.76	76	204	286	
4		1	42	270	4.91	1.55	1.59	7.53	3.68	2.46	1.76	115	307	429	
		5	42	270	7.03	1.98	2.08	7.53	3.68	2.46	1.76	115	307	429	
5		1	36	292	4.97	1.66	1.69	7.61	3.73	2.50	1.80	153	404	563	
		5	36	292	7.12	2.15	2.22	7.61	3.73	2.50	1.80	153	404	563	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	37	238	4.24	1.35	1.38	8.60	4.20	2.82	2.02	33	89	125	
		5	37	238	6.43	1.59	1.74	8.60	4.20	2.82	2.02	33	89	125	
	3	1	37	238	4.24	1.42	1.44	8.60	4.20	2.82	2.02	67	179	250	
		5	37	238	6.43	1.81	1.90	8.60	4.20	2.82	2.02	67	179	250	
		5	37	238	4.24	1.46	1.48	8.60	4.20	2.82	2.02	100	268	375	
	4	1	37	238	6.43	1.95	2.02	8.60	4.20	2.82	2.02	100	268	375	
		5	32	256	4.29	1.53	1.54	8.69	4.26	2.86	2.06	134	354	494	
	5	1	32	256	6.50	2.09	2.15	8.69	4.26	2.86	2.06	134	354	494	
		5	32	256	4.36	1.36	1.40	8.60	4.20	2.82	2.02	33	89	125	
	10	2	1	37	238	6.53	1.60	1.76	8.60	4.20	2.82	2.02	33	89	125
5			37	238	4.36	1.45	1.47	8.60	4.20	2.82	2.02	67	179	250	
3		1	37	238	6.53	1.83	1.93	8.60	4.20	2.82	2.02	67	179	250	
		5	37	238	4.36	1.50	1.51	8.60	4.20	2.82	2.02	100	268	375	
4		1	37	238	6.53	1.97	2.05	8.60	4.20	2.82	2.02	100	268	375	
		5	32	256	4.40	1.57	1.58	8.69	4.26	2.86	2.06	134	354	494	
5		1	32	256	6.60	2.12	2.18	8.69	4.26	2.86	2.06	134	354	494	
		5	32	256	4.58	1.39	1.45	8.60	4.20	2.82	2.02	33	89	125	
20		2	1	37	238	6.72	1.63	1.79	8.60	4.20	2.82	2.02	33	89	125
			5	37	238	4.58	1.50	1.53	8.60	4.20	2.82	2.02	67	179	250
	3	1	37	238	6.72	1.86	1.97	8.60	4.20	2.82	2.02	67	179	250	
		5	37	238	4.58	1.56	1.58	8.60	4.20	2.82	2.02	100	268	375	
	4	1	37	238	6.72	2.02	2.10	8.60	4.20	2.82	2.02	100	268	375	
		5	32	256	4.63	1.64	1.66	8.69	4.26	2.86	2.06	134	354	494	
	5	1	32	256	6.80	2.17	2.24	8.69	4.26	2.86	2.06	134	354	494	
		5	32	256	5.03	1.46	1.54	8.60	4.20	2.82	2.02	33	89	125	
	40	2	1	37	238	7.11	1.67	1.86	8.60	4.20	2.82	2.02	33	89	125
			5	37	238	5.03	1.60	1.66	8.60	4.20	2.82	2.02	67	179	250
3		1	37	238	7.11	1.94	2.06	8.60	4.20	2.82	2.02	67	179	250	
		5	37	238	5.03	1.68	1.72	8.60	4.20	2.82	2.02	100	268	375	
4		1	37	238	7.11	2.11	2.20	8.60	4.20	2.82	2.02	100	268	375	
		5	32	256	5.09	1.79	1.82	8.69	4.26	2.86	2.06	134	354	494	
5		1	32	256	7.19	2.28	2.35	8.69	4.26	2.86	2.06	134	354	494	
		5	32	256	5.03	1.46	1.54	8.60	4.20	2.82	2.02	33	89	125	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	33	212	4.39	1.48	1.50	9.67	4.73	3.17	2.27	29	79	111	
		5	33	212	6.53	1.72	1.87	9.67	4.73	3.17	2.27	29	79	111	
	3	1	33	212	4.39	1.55	1.57	9.67	4.73	3.17	2.27	59	159	222	
		5	33	212	6.53	1.94	2.03	9.67	4.73	3.17	2.27	59	159	222	
		5	33	212	4.39	1.59	1.60	9.67	4.73	3.17	2.27	89	238	334	
	4	1	33	212	6.53	2.08	2.15	9.67	4.73	3.17	2.27	89	238	334	
		5	28	230	4.44	1.66	1.67	9.79	4.80	3.22	2.32	119	314	438	
	5	1	28	230	6.62	2.23	2.28	9.79	4.80	3.22	2.32	119	314	438	
		5	28	230	4.50	1.49	1.53	9.67	4.73	3.17	2.27	29	79	111	
	10	2	1	33	212	6.63	1.73	1.89	9.67	4.73	3.17	2.27	29	79	111
5			33	212	4.50	1.58	1.60	9.67	4.73	3.17	2.27	59	159	222	
3		1	33	212	6.63	1.95	2.06	9.67	4.73	3.17	2.27	59	159	222	
		5	33	212	4.50	1.62	1.64	9.67	4.73	3.17	2.27	89	238	334	
4		1	33	212	6.63	2.10	2.18	9.67	4.73	3.17	2.27	89	238	334	
		5	33	212	4.55	1.70	1.71	9.79	4.80	3.22	2.32	119	314	438	
5		1	28	230	6.71	2.26	2.31	9.79	4.80	3.22	2.32	119	314	438	
		5	28	230	4.72	1.52	1.57	9.67	4.73	3.17	2.27	29	79	111	
20		2	1	33	212	6.82	1.76	1.92	9.67	4.73	3.17	2.27	29	79	111
			5	33	212	4.72	1.63	1.66	9.67	4.73	3.17	2.27	59	159	222
	3	1	33	212	6.82	1.99	2.10	9.67	4.73	3.17	2.27	59	159	222	
		5	33	212	4.72	1.69	1.71	9.67	4.73	3.17	2.27	89	238	334	
	4	1	33	212	6.82	2.15	2.23	9.67	4.73	3.17	2.27	89	238	334	
		5	28	230	4.78	1.77	1.79	9.79	4.80	3.22	2.32	119	314	438	
	5	1	28	230	6.91	2.31	2.37	9.79	4.80	3.22	2.32	119	314	438	
		5	28	230	5.16	1.59	1.67	9.67	4.73	3.17	2.27	29	79	111	
	40	2	1	33	212	7.20	1.80	1.99	9.67	4.73	3.17	2.27	29	79	111
			5	33	212	5.16	1.73	1.78	9.67	4.73	3.17	2.27	59	159	222
3		1	33	212	7.20	2.07	2.19	9.67	4.73	3.17	2.27	59	159	222	
		5	33	212	5.16	1.81	1.85	9.67	4.73	3.17	2.27	89	238	334	
4		1	33	212	7.20	2.24	2.33	9.67	4.73	3.17	2.27	89	238	334	
		5	28	230	5.23	1.92	1.95	9.79	4.80	3.22	2.32	119	314	438	
5		1	28	230	7.29	2.42	2.49	9.79	4.80	3.22	2.32	119	314	438	
		5	28	230	5.16	1.59	1.67	9.67	4.73	3.17	2.27	29	79	111	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	30	190	4.53	1.61	1.63	10.74	5.25	3.52	2.52	26	71	100	
		5	30	190	6.64	1.85	2.00	10.74	5.25	3.52	2.52	26	71	100	
	3	1	30	190	4.53	1.68	1.69	10.74	5.25	3.52	2.52	53	143	200	
		5	30	190	6.64	2.06	2.16	10.74	5.25	3.52	2.52	53	143	200	
	4	1	30	190	4.53	1.72	1.73	10.74	5.25	3.52	2.52	80	215	301	
		5	30	190	6.64	2.21	2.28	10.74	5.25	3.52	2.52	80	215	301	
	5	1	25	210	4.60	1.80	1.80	10.89	5.34	3.58	2.58	107	283	394	
		5	25	210	6.74	2.36	2.42	10.89	5.34	3.58	2.58	107	283	394	
	10	2	1	30	190	4.64	1.62	1.66	10.74	5.25	3.52	2.52	26	71	100
			5	30	190	6.73	1.86	2.01	10.74	5.25	3.52	2.52	26	71	100
3		1	30	190	4.64	1.71	1.73	10.74	5.25	3.52	2.52	53	143	200	
		5	30	190	6.73	2.08	2.18	10.74	5.25	3.52	2.52	53	143	200	
4		1	30	190	4.64	1.75	1.77	10.74	5.25	3.52	2.52	80	215	301	
		5	30	190	6.73	2.23	2.31	10.74	5.25	3.52	2.52	80	215	301	
5		1	25	210	4.71	1.83	1.84	10.89	5.34	3.58	2.58	107	283	394	
		5	25	210	6.84	2.39	2.45	10.89	5.34	3.58	2.58	107	283	394	
20		2	1	30	190	4.86	1.65	1.70	10.74	5.25	3.52	2.52	26	71	100
			5	30	190	6.92	1.88	2.05	10.74	5.25	3.52	2.52	26	71	100
	3	1	30	190	4.86	1.76	1.79	10.74	5.25	3.52	2.52	53	143	200	
		5	30	190	6.92	2.12	2.23	10.74	5.25	3.52	2.52	53	143	200	
	4	1	30	190	4.86	1.81	1.84	10.74	5.25	3.52	2.52	80	215	301	
		5	30	190	6.92	2.28	2.36	10.74	5.25	3.52	2.52	80	215	301	
	5	1	25	210	4.93	1.91	1.92	10.89	5.34	3.58	2.58	107	283	394	
		5	25	210	7.03	2.44	2.50	10.89	5.34	3.58	2.58	107	283	394	
	40	2	1	30	190	5.29	1.71	1.79	10.74	5.25	3.52	2.52	26	71	100
			5	30	190	7.29	1.93	2.12	10.74	5.25	3.52	2.52	26	71	100
3		1	30	190	5.29	1.86	1.91	10.74	5.25	3.52	2.52	53	143	200	
		5	30	190	7.29	2.19	2.32	10.74	5.25	3.52	2.52	53	143	200	
4		1	30	190	5.29	1.94	1.97	10.74	5.25	3.52	2.52	80	215	301	
		5	30	190	7.29	2.37	2.46	10.74	5.25	3.52	2.52	80	215	301	
5		1	25	210	5.37	2.06	2.08	10.89	5.34	3.58	2.58	107	283	394	
		5	25	210	7.41	2.55	2.62	10.89	5.34	3.58	2.58	107	283	394	

220 CHARACTER DATA RECORD 80K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	27	174	4.68	1.74	1.76	11.82	5.78	3.87	2.77	24	65	91	
		5	27	174	6.76	1.98	2.13	11.82	5.78	3.87	2.77	24	65	91	
	3	1	27	174	4.68	1.81	1.83	11.82	5.78	3.87	2.77	48	130	182	
		5	27	174	6.76	2.20	2.29	11.82	5.78	3.87	2.77	48	130	182	
	4	1	27	174	4.68	1.85	1.86	11.82	5.78	3.87	2.77	73	195	273	
		5	27	174	6.76	2.34	2.41	11.82	5.78	3.87	2.77	73	195	273	
	5	1	23	190	4.75	1.93	1.93	11.96	5.86	3.93	2.83	97	257	358	
		5	23	190	6.85	2.49	2.55	11.96	5.86	3.93	2.83	97	257	358	
	10	2	1	27	174	4.79	1.75	1.79	11.82	5.78	3.87	2.77	24	65	91
			5	27	174	6.85	1.99	2.15	11.82	5.78	3.87	2.77	24	65	91
3		1	27	174	4.79	1.84	1.86	11.82	5.78	3.87	2.77	48	130	182	
		5	27	174	6.85	2.21	2.31	11.82	5.78	3.87	2.77	48	130	182	
4		1	27	174	4.79	1.88	1.90	11.82	5.78	3.87	2.77	73	195	273	
		5	27	174	6.85	2.36	2.44	11.82	5.78	3.87	2.77	73	195	273	
5		1	23	190	4.86	1.96	1.97	11.96	5.86	3.93	2.83	97	257	358	
		5	23	190	6.95	2.52	2.57	11.96	5.86	3.93	2.83	97	257	358	
20		2	1	27	174	5.01	1.78	1.83	11.82	5.78	3.87	2.77	24	65	91
			5	27	174	7.04	2.02	2.18	11.82	5.78	3.87	2.77	24	65	91
	3	1	27	174	5.01	1.89	1.92	11.82	5.78	3.87	2.77	48	130	182	
		5	27	174	7.04	2.25	2.36	11.82	5.78	3.87	2.77	48	130	182	
	4	1	27	174	5.01	1.95	1.97	11.82	5.78	3.87	2.77	73	195	273	
		5	27	174	7.04	2.41	2.49	11.82	5.78	3.87	2.77	73	195	273	
	5	1	23	190	5.07	2.04	2.05	11.96	5.86	3.93	2.83	97	257	358	
		5	23	190	7.14	2.57	2.63	11.96	5.86	3.93	2.83	97	257	358	
	40	2	1	27	174	5.43	1.84	1.92	11.82	5.78	3.87	2.77	24	65	91
			5	27	174	7.41	2.06	2.25	11.82	5.78	3.87	2.77	24	65	91
3		1	27	174	5.43	1.99	2.04	11.82	5.78	3.87	2.77	48	130	182	
		5	27	174	7.41	2.33	2.45	11.82	5.78	3.87	2.77	48	130	182	
4		1	27	174	5.43	2.07	2.11	11.82	5.78	3.87	2.77	73	195	273	
		5	27	174	7.41	2.50	2.59	11.82	5.78	3.87	2.77	73	195	273	
5		1	23	190	5.51	2.19	2.21	11.96	5.86	3.93	2.83	97	257	358	
		5	23	190	7.51	2.68	2.75	11.96	5.86	3.93	2.83	97	257	358	

240 CHARACTER DATA RECORD 80K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	25	160	4.84	1.87	1.89	12.89	6.30	4.22	3.02	22	59	83	
		5	25	160	6.88	2.11	2.26	12.89	6.30	4.22	3.02	22	59	83	
	3	1	25	160	4.84	1.94	1.95	12.89	6.30	4.22	3.02	44	119	167	
		5	25	160	6.88	2.32	2.42	12.89	6.30	4.22	3.02	44	119	167	
	4	1	25	160	4.84	1.98	1.99	12.89	6.30	4.22	3.02	67	179	250	
		5	25	160	6.88	2.47	2.54	12.89	6.30	4.22	3.02	67	179	250	
	5	1	21	176	4.91	2.06	2.06	13.06	6.40	4.29	3.09	89	236	328	
		5	21	176	6.99	2.63	2.68	13.06	6.40	4.29	3.09	89	236	328	
	10	2	1	25	160	4.94	1.88	1.91	12.89	6.30	4.22	3.02	22	59	83
			5	25	160	6.98	2.12	2.27	12.89	6.30	4.22	3.02	22	59	83
3		1	25	160	4.94	1.96	1.98	12.89	6.30	4.22	3.02	44	119	167	
		5	25	160	6.98	2.34	2.44	12.89	6.30	4.22	3.02	44	119	167	
4		1	25	160	4.94	2.01	2.02	12.89	6.30	4.22	3.02	67	179	250	
		5	25	160	6.98	2.49	2.56	12.89	6.30	4.22	3.02	67	179	250	
5		1	21	176	5.02	2.10	2.10	13.06	6.40	4.29	3.09	89	236	328	
		5	21	176	7.08	2.65	2.71	13.06	6.40	4.29	3.09	89	236	328	
20		2	1	25	160	5.16	1.91	1.96	12.89	6.30	4.22	3.02	22	59	83
			5	25	160	7.16	2.14	2.31	12.89	6.30	4.22	3.02	22	59	83
	3	1	25	160	5.16	2.02	2.05	12.89	6.30	4.22	3.02	44	119	167	
		5	25	160	7.16	2.38	2.49	12.89	6.30	4.22	3.02	44	119	167	
	4	1	25	160	5.16	2.07	2.09	12.89	6.30	4.22	3.02	67	179	250	
		5	25	160	7.16	2.54	2.62	12.89	6.30	4.22	3.02	67	179	250	
	5	1	21	176	5.23	2.17	2.18	13.06	6.40	4.29	3.09	89	236	328	
		5	21	176	7.27	2.71	2.77	13.06	6.40	4.29	3.09	89	236	328	
	40	2	1	25	160	5.58	1.97	2.05	12.89	6.30	4.22	3.02	22	59	83
			5	25	160	7.52	2.19	2.38	12.89	6.30	4.22	3.02	22	59	83
3		1	25	160	5.58	2.12	2.17	12.89	6.30	4.22	3.02	44	119	167	
		5	25	160	7.52	2.45	2.58	12.89	6.30	4.22	3.02	44	119	167	
4		1	25	160	5.58	2.20	2.23	12.89	6.30	4.22	3.02	67	179	250	
		5	25	160	7.52	2.63	2.72	12.89	6.30	4.22	3.02	67	179	250	
5		1	21	176	5.66	2.32	2.34	13.06	6.40	4.29	3.09	89	236	328	
		5	21	176	7.64	2.81	2.88	13.06	6.40	4.29	3.09	89	236	328	

260 CHARACTER DATA RECORD 80K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	23	148	5.00	2.00	2.02	13.96	6.82	4.57	3.27	20	55	77	
		5	23	148	7.02	2.24	2.39	13.96	6.82	4.57	3.27	20	55	77	
	3	1	23	148	5.00	2.07	2.08	13.96	6.82	4.57	3.27	41	110	154	
		5	23	148	7.02	2.45	2.55	13.96	6.82	4.57	3.27	41	110	154	
	4	1	23	148	5.00	2.11	2.12	13.96	6.82	4.57	3.27	62	165	231	
		5	23	148	7.02	2.60	2.67	13.96	6.82	4.57	3.27	62	165	231	
	5	1	19	164	5.08	2.20	2.20	14.17	6.95	4.66	3.36	82	217	302	
		5	19	164	7.13	2.76	2.81	14.17	6.95	4.66	3.36	82	217	302	
	10	2	1	23	148	5.10	2.01	2.04	13.96	6.82	4.57	3.27	20	55	77
			5	23	148	7.10	2.25	2.40	13.96	6.82	4.57	3.27	20	55	77
3		1	23	148	5.10	2.10	2.11	13.96	6.82	4.57	3.27	41	110	154	
		5	23	148	7.10	2.47	2.57	13.96	6.82	4.57	3.27	41	110	154	
4		1	23	148	5.10	2.14	2.15	13.96	6.82	4.57	3.27	62	165	231	
		5	23	148	7.10	2.62	2.69	13.96	6.82	4.57	3.27	62	165	231	
5		1	19	164	5.18	2.24	2.24	14.17	6.95	4.66	3.36	82	217	302	
		5	19	164	7.22	2.79	2.84	14.17	6.95	4.66	3.36	82	217	302	
20		2	1	23	148	5.31	2.04	2.09	13.96	6.82	4.57	3.27	20	55	77
			5	23	148	7.28	2.27	2.44	13.96	6.82	4.57	3.27	20	55	77
	3	1	23	148	5.31	2.15	2.18	13.96	6.82	4.57	3.27	41	110	154	
		5	23	148	7.28	2.51	2.62	13.96	6.82	4.57	3.27	41	110	154	
	4	1	23	148	5.31	2.20	2.22	13.96	6.82	4.57	3.27	62	165	231	
		5	23	148	7.28	2.67	2.75	13.96	6.82	4.57	3.27	62	165	231	
	5	1	19	164	5.40	2.31	2.32	14.17	6.95	4.66	3.36	82	217	302	
		5	19	164	7.41	2.84	2.90	14.17	6.95	4.66	3.36	82	217	302	
	40	2	1	23	148	5.73	2.10	2.18	13.96	6.82	4.57	3.27	20	55	77
			5	23	148	7.64	2.32	2.51	13.96	6.82	4.57	3.27	20	55	77
3		1	23	148	5.73	2.25	2.30	13.96	6.82	4.57	3.27	41	110	154	
		5	23	148	7.64	2.58	2.70	13.96	6.82	4.57	3.27	41	110	154	
4		1	23	148	5.73	2.33	2.36	13.96	6.82	4.57	3.27	62	165	231	
		5	23	148	7.64	2.76	2.85	13.96	6.82	4.57	3.27	62	165	231	
5		1	19	164	5.82	2.46	2.48	14.17	6.95	4.66	3.36	82	217	302	
		5	19	164	7.77	2.95	3.02	14.17	6.95	4.66	3.36	82	217	302	

280 CHARACTER DATA RECORD 80K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
					5	2	1	21	140	5.17	2.13	2.15	15.06	7.36
		5	21	140	7.17	2.37	2.52	15.06	7.36	4.93	3.53	19	51	71
	3	1	21	140	5.17	2.20	2.21	15.06	7.36	4.93	3.53	38	102	143
		5	21	140	7.17	2.59	2.68	15.06	7.36	4.93	3.53	38	102	143
	4	1	21	140	5.17	2.25	2.25	15.06	7.36	4.93	3.53	57	153	214
		5	21	140	7.17	2.73	2.80	15.06	7.36	4.93	3.53	57	153	214
	5	1	18	150	5.23	2.33	2.33	15.23	7.47	5.01	3.61	76	202	281
		5	18	150	7.25	2.89	2.94	15.23	7.47	5.01	3.61	76	202	281
10	2	1	21	140	5.27	2.14	2.18	15.06	7.36	4.93	3.53	19	51	71
		5	21	140	7.25	2.38	2.53	15.06	7.36	4.93	3.53	19	51	71
	3	1	21	140	5.27	2.23	2.25	15.06	7.36	4.93	3.53	38	102	143
		5	21	140	7.25	2.61	2.70	15.06	7.36	4.93	3.53	38	102	143
	4	1	21	140	5.27	2.28	2.29	15.06	7.36	4.93	3.53	57	153	214
		5	21	140	7.25	2.76	2.83	15.06	7.36	4.93	3.53	57	153	214
	5	1	18	150	5.33	2.36	2.37	15.23	7.47	5.01	3.61	76	202	281
		5	18	150	7.34	2.92	2.97	15.23	7.47	5.01	3.61	76	202	281
20	2	1	21	140	5.48	2.18	2.22	15.06	7.36	4.93	3.53	19	51	71
		5	21	140	7.43	2.41	2.57	15.06	7.36	4.93	3.53	19	51	71
	3	1	21	140	5.48	2.28	2.31	15.06	7.36	4.93	3.53	38	102	143
		5	21	140	7.43	2.64	2.75	15.06	7.36	4.93	3.53	38	102	143
	4	1	21	140	5.48	2.34	2.36	15.06	7.36	4.93	3.53	57	153	214
		5	21	140	7.43	2.80	2.88	15.06	7.36	4.93	3.53	57	153	214
	5	1	18	150	5.54	2.44	2.45	15.23	7.47	5.01	3.61	76	202	281
		5	18	150	7.52	2.97	3.03	15.23	7.47	5.01	3.61	76	202	281
40	2	1	21	140	5.89	2.24	2.31	15.06	7.36	4.93	3.53	19	51	71
		5	21	140	7.79	2.45	2.64	15.06	7.36	4.93	3.53	19	51	71
	3	1	21	140	5.89	2.38	2.43	15.06	7.36	4.93	3.53	38	102	143
		5	21	140	7.79	2.72	2.84	15.06	7.36	4.93	3.53	38	102	143
	4	1	21	140	5.89	2.46	2.49	15.06	7.36	4.93	3.53	57	153	214
		5	21	140	7.79	2.89	2.98	15.06	7.36	4.93	3.53	57	153	214
	5	1	18	150	5.96	2.58	2.61	15.23	7.47	5.01	3.61	76	202	281
		5	18	150	7.88	3.08	3.15	15.23	7.47	5.01	3.61	76	202	281

300 CHARACTER DATA RECORD 80K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
					5	2	1	20	128	5.32	2.25	2.28	16.11	7.87
		5	20	128	7.28	2.50	2.64	16.11	7.87	5.28	3.78	17	47	66
	3	1	20	128	5.32	2.33	2.34	16.11	7.87	5.28	3.78	35	95	133
		5	20	128	7.28	2.71	2.81	16.11	7.87	5.28	3.78	35	95	133
	4	1	20	128	5.32	2.37	2.38	16.11	7.87	5.28	3.78	53	143	200
		5	20	128	7.28	2.86	2.92	16.11	7.87	5.28	3.78	53	143	200
	5	1	17	140	5.39	2.46	2.46	16.31	7.99	5.36	3.86	71	189	263
		5	17	140	7.39	3.02	3.07	16.31	7.99	5.36	3.86	71	189	263
10	2	1	20	128	5.42	2.27	2.30	16.11	7.87	5.28	3.78	17	47	66
		5	20	128	7.37	2.51	2.66	16.11	7.87	5.28	3.78	17	47	66
	3	1	20	128	5.42	2.35	2.37	16.11	7.87	5.28	3.78	35	95	133
		5	20	128	7.37	2.73	2.83	16.11	7.87	5.28	3.78	35	95	133
	4	1	20	128	5.42	2.40	2.41	16.11	7.87	5.28	3.78	53	143	200
		5	20	128	7.37	2.88	2.95	16.11	7.87	5.28	3.78	53	143	200
	5	1	17	140	5.49	2.49	2.50	16.31	7.99	5.36	3.86	71	189	263
		5	17	140	7.48	3.05	3.10	16.31	7.99	5.36	3.86	71	189	263
20	2	1	20	128	5.62	2.30	2.35	16.11	7.87	5.28	3.78	17	47	66
		5	20	128	7.55	2.53	2.69	16.11	7.87	5.28	3.78	17	47	66
	3	1	20	128	5.62	2.41	2.43	16.11	7.87	5.28	3.78	35	95	133
		5	20	128	7.55	2.77	2.87	16.11	7.87	5.28	3.78	35	95	133
	4	1	20	128	5.62	2.46	2.48	16.11	7.87	5.28	3.78	53	143	200
		5	20	128	7.55	2.93	3.00	16.11	7.87	5.28	3.78	53	143	200
	5	1	17	140	5.70	2.57	2.58	16.31	7.99	5.36	3.86	71	189	263
		5	17	140	7.66	3.10	3.16	16.31	7.99	5.36	3.86	71	189	263
40	2	1	20	128	6.03	2.36	2.44	16.11	7.87	5.28	3.78	17	47	66
		5	20	128	7.90	2.58	2.76	16.11	7.87	5.28	3.78	17	47	66
	3	1	20	128	6.03	2.51	2.56	16.11	7.87	5.28	3.78	35	95	133
		5	20	128	7.90	2.84	2.96	16.11	7.87	5.28	3.78	35	95	133
	4	1	20	128	6.03	2.59	2.62	16.11	7.87	5.28	3.78	53	143	200
		5	20	128	7.90	3.02	3.11	16.11	7.87	5.28	3.78	53	143	200
	5	1	17	140	6.11	2.71	2.74	16.31	7.99	5.36	3.86	71	189	263
		5	17	140	8.61	3.21	3.27	16.31	7.99	5.36	3.86	71	189	263

400 CHARACTER DATA RECORD 80K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	15	98	6.16	2.90	2.92	21.48	10.50	7.04	5.04	13	35	50	
		5	15	98	8.03	3.15	3.29	21.48	10.50	7.04	5.04	13	35	50	
		1	15	98	6.16	2.98	2.98	21.48	10.50	7.04	5.04	26	71	100	
	4	5	15	98	8.03	3.36	3.45	21.48	10.50	7.04	5.04	26	71	100	
		1	15	98	6.16	3.02	3.02	21.48	10.50	7.04	5.04	40	107	150	
		5	15	98	8.03	3.51	3.57	21.48	10.50	7.04	5.04	40	107	150	
	5	1	12	108	6.27	3.14	3.14	21.85	10.72	7.20	5.20	53	141	196	
		5	12	108	8.17	3.71	3.75	21.85	10.72	7.20	5.20	53	141	196	
	10	2	1	15	98	6.25	2.92	2.95	21.48	10.50	7.04	5.04	13	35	50
			5	15	98	8.11	3.16	3.30	21.48	10.50	7.04	5.04	13	35	50
			1	15	98	6.25	3.00	3.02	21.48	10.50	7.04	5.04	26	71	100
		3	5	15	98	8.11	3.38	3.47	21.48	10.50	7.04	5.04	26	71	100
			1	15	98	6.25	3.05	3.06	21.48	10.50	7.04	5.04	26	71	100
			5	15	98	8.11	3.53	3.60	21.48	10.50	7.04	5.04	40	107	150
		4	1	12	108	6.37	3.18	3.18	21.85	10.72	7.20	5.20	53	141	196
5			12	108	8.26	3.73	3.78	21.85	10.72	7.20	5.20	53	141	196	
20		2	1	15	98	6.45	2.95	2.99	21.48	10.50	7.04	5.04	13	35	50
			5	15	98	8.28	3.18	3.34	21.48	10.50	7.04	5.04	13	35	50
			1	15	98	6.45	3.05	3.08	21.48	10.50	7.04	5.04	26	71	100
		3	5	15	98	8.28	3.42	3.52	21.48	10.50	7.04	5.04	26	71	100
			1	15	98	6.45	3.11	3.13	21.48	10.50	7.04	5.04	40	107	150
			5	15	98	8.28	3.58	3.65	21.48	10.50	7.04	5.04	40	107	150
		4	1	12	108	6.56	3.25	3.26	21.85	10.72	7.20	5.20	53	141	196
	5		12	108	8.43	3.79	3.84	21.85	10.72	7.20	5.20	53	141	196	
	40	2	1	15	98	6.84	3.01	3.08	21.48	10.50	7.04	5.04	13	35	50
			5	15	98	8.61	3.23	3.41	21.48	10.50	7.04	5.04	13	35	50
			1	15	98	6.84	3.16	3.20	21.48	10.50	7.04	5.04	26	71	100
		3	5	15	98	8.61	3.49	3.61	21.48	10.50	7.04	5.04	26	71	100
			1	15	98	6.84	3.24	3.26	21.48	10.50	7.04	5.04	40	107	150
			5	15	98	8.61	3.67	3.75	21.48	10.50	7.04	5.04	40	107	150
		4	1	12	108	6.96	3.40	3.42	21.85	10.72	7.20	5.20	53	141	196
5			12	108	8.77	3.89	3.95	21.85	10.72	7.20	5.20	53	141	196	

500 CHARACTER DATA RECORD 80K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	12	78	7.01	3.55	3.57	26.85	13.12	8.80	6.30	10	28	40	
		5	12	78	8.80	3.80	3.93	26.85	13.12	8.80	6.30	10	28	40	
		1	12	78	7.01	3.63	3.63	26.85	13.12	8.80	6.30	21	57	80	
	4	5	12	78	8.80	4.01	4.10	26.85	13.12	8.80	6.30	21	57	80	
		1	12	78	7.01	3.67	3.67	26.85	13.12	8.80	6.30	32	86	120	
		5	12	78	8.80	4.16	4.21	26.85	13.12	8.80	6.30	32	86	120	
	5	1	10	86	7.12	3.79	3.78	27.23	13.35	8.96	6.46	42	113	157	
		5	10	86	8.95	4.35	4.39	27.23	13.35	8.96	6.46	42	113	157	
	10	2	1	12	78	7.11	3.57	3.59	26.85	13.12	8.80	6.30	10	28	40
			5	12	78	8.88	3.81	3.95	26.85	13.12	8.80	6.30	10	28	40
			1	12	78	7.11	3.65	3.66	26.85	13.12	8.80	6.30	21	57	80
		3	5	12	78	8.88	4.03	4.12	26.85	13.12	8.80	6.30	21	57	80
			1	12	78	7.11	3.70	3.70	26.85	13.12	8.80	6.30	32	86	120
			5	12	78	8.88	4.18	4.24	26.85	13.12	8.80	6.30	32	86	120
		4	1	10	86	7.22	3.83	3.82	27.23	13.35	8.96	6.46	42	113	157
5			10	86	9.03	4.38	4.42	27.23	13.35	8.96	6.46	42	113	157	
20		2	1	12	78	7.29	3.60	3.64	26.85	13.12	8.80	6.30	10	28	40
			5	12	78	9.04	3.83	3.98	26.85	13.12	8.80	6.30	10	28	40
			1	12	78	7.29	3.70	3.72	26.85	13.12	8.80	6.30	21	57	80
		3	5	12	78	9.04	4.07	4.16	26.85	13.12	8.80	6.30	21	57	80
			1	12	78	7.29	3.76	3.77	26.85	13.12	8.80	6.30	32	86	120
			5	12	78	9.04	4.22	4.29	26.85	13.12	8.80	6.30	32	86	120
		4	1	10	86	7.41	3.90	3.90	27.23	13.35	8.96	6.46	42	113	157
	5		10	86	9.19	4.43	4.48	27.23	13.35	8.96	6.46	42	113	157	
	40	2	1	12	78	7.66	3.66	3.73	26.85	13.12	8.80	6.30	10	28	40
			5	12	78	9.36	3.88	4.05	26.85	13.12	8.80	6.30	10	28	40
			1	12	78	7.66	3.81	3.85	26.85	13.12	8.80	6.30	21	57	80
		3	5	12	78	9.36	4.14	4.25	26.85	13.12	8.80	6.30	21	57	80
			1	12	78	7.66	3.88	3.91	26.85	13.12	8.80	6.30	32	86	120
			5	12	78	9.36	4.32	4.40	26.85	13.12	8.80	6.30	32	86	120
		4	1	10	86	7.79	4.05	4.06	27.23	13.35	8.96	6.46	42	113	157
5			10	86	9.52	4.54	4.60	27.23	13.35	8.96	6.46	42	113	157	



750 CHARACTER DATA RECORD 80K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	8	52	9.22	5.17	5.18	40.28	19.69	13.20	9.45	7	19	26	
		5	8	52	10.87	5.42	5.54	40.28	19.69	13.20	9.45	7	19	26	
	3	1	8	52	9.22	5.25	5.24	40.28	19.69	13.20	9.45	14	38	53	
		5	8	52	10.87	5.63	5.71	40.28	19.69	13.20	9.45	14	38	53	
	4	1	8	52	9.22	5.29	5.28	40.28	19.69	13.20	9.45	21	57	80	
		5	8	52	10.87	5.78	5.83	40.28	19.69	13.20	9.45	21	57	80	
	5	1	6	60	9.46	5.52	5.50	41.21	20.25	13.60	9.85	28	74	103	
		5	6	60	11.15	6.09	6.12	41.21	20.25	13.60	9.85	28	74	103	
	10	2	1	8	52	9.31	5.19	5.20	40.28	19.69	13.20	9.45	7	19	26
			5	8	52	10.94	5.43	5.56	40.28	19.69	13.20	9.45	7	19	26
3		1	8	52	9.31	5.27	5.27	40.28	19.69	13.20	9.45	14	38	53	
		5	8	52	10.94	5.65	5.73	40.28	19.69	13.20	9.45	14	38	53	
4		1	8	52	9.31	5.32	5.31	40.28	19.69	13.20	9.45	21	57	80	
		5	8	52	10.94	5.80	5.85	40.28	19.69	13.20	9.45	21	57	80	
5		1	6	60	9.54	5.56	5.54	41.21	20.25	13.60	9.85	28	74	103	
		5	6	60	11.23	6.12	6.14	41.21	20.25	13.60	9.85	28	74	103	
20		2	1	8	52	9.48	5.22	5.25	40.28	19.69	13.20	9.45	7	19	26
			5	8	52	11.09	5.45	5.60	40.28	19.69	13.20	9.45	7	19	26
	3	1	8	52	9.48	5.32	5.33	40.28	19.69	13.20	9.45	14	38	53	
		5	8	52	11.09	5.69	5.77	40.28	19.69	13.20	9.45	14	38	53	
	4	1	8	52	9.48	5.38	5.38	40.28	19.69	13.20	9.45	21	57	80	
		5	8	52	11.09	5.85	5.90	40.28	19.69	13.20	9.45	21	57	80	
	5	1	6	60	9.72	5.63	5.62	41.21	20.25	13.60	9.85	28	74	103	
		5	6	60	11.38	6.17	6.20	41.21	20.25	13.60	9.85	28	74	103	
	40	2	1	8	52	9.82	5.28	5.34	40.28	19.69	13.20	9.45	7	19	26
			5	8	52	11.38	5.50	5.66	40.28	19.69	13.20	9.45	7	19	26
3		1	8	52	9.82	5.43	5.46	40.28	19.69	13.20	9.45	14	38	53	
		5	8	52	11.38	5.76	5.86	40.28	19.69	13.20	9.45	14	38	53	
4		1	8	52	9.82	5.51	5.52	40.28	19.69	13.20	9.45	21	57	80	
		5	8	52	11.38	5.94	6.01	40.28	19.69	13.20	9.45	21	57	80	
5		1	6	60	10.07	5.78	5.78	41.21	20.25	13.60	9.85	28	74	103	
		5	6	60	11.68	6.28	6.32	41.21	20.25	13.60	9.85	28	74	103	

1000 CHARACTER DATA RECORD 80K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	6	38	11.47	6.80	6.79	53.71	26.25	17.60	12.60	5	14	20	
		5	6	38	13.01	7.04	7.16	53.71	26.25	17.60	12.60	5	14	20	
	3	1	6	38	11.47	6.87	6.85	53.71	26.25	17.60	12.60	10	28	40	
		5	6	38	13.01	7.25	7.32	53.71	26.25	17.60	12.60	10	28	40	
	4	1	6	38	11.47	6.91	6.89	53.71	26.25	17.60	12.60	16	43	60	
		5	6	38	13.01	7.40	7.44	53.71	26.25	17.60	12.60	16	43	60	
	5	1	5	42	11.65	7.11	7.08	54.46	26.71	17.93	12.93	21	56	78	
		5	5	42	13.22	7.67	7.69	54.46	26.71	17.93	12.93	21	56	78	
	10	2	1	6	38	11.55	6.81	6.81	53.71	26.25	17.60	12.60	5	14	20
			5	6	38	13.07	7.05	7.17	53.71	26.25	17.60	12.60	5	14	20
3		1	6	38	11.55	6.89	6.88	53.71	26.25	17.60	12.60	10	28	40	
		5	6	38	13.07	7.27	7.34	53.71	26.25	17.60	12.60	10	28	40	
4		1	6	38	11.55	6.94	6.93	53.71	26.25	17.60	12.60	16	43	60	
		5	6	38	13.07	7.42	7.46	53.71	26.25	17.60	12.60	16	43	60	
5		1	5	42	11.73	7.15	7.12	54.46	26.71	17.93	12.93	21	56	78	
		5	5	42	13.29	7.70	7.72	54.46	26.71	17.93	12.93	21	56	78	
20		2	1	6	38	11.71	6.84	6.86	53.71	26.25	17.60	12.60	5	14	20
			5	6	38	13.21	7.07	7.21	53.71	26.25	17.60	12.60	5	14	20
	3	1	6	38	11.71	6.95	6.95	53.71	26.25	17.60	12.60	10	28	40	
		5	6	38	13.21	7.31	7.39	53.71	26.25	17.60	12.60	10	28	40	
	4	1	6	38	11.71	7.00	6.99	53.71	26.25	17.60	12.60	16	43	60	
		5	6	38	13.21	7.47	7.52	53.71	26.25	17.60	12.60	16	43	60	
	5	1	5	42	11.90	7.22	7.20	54.46	26.71	17.93	12.93	21	56	78	
		5	5	42	13.43	7.75	7.78	54.46	26.71	17.93	12.93	21	56	78	
	40	2	1	6	38	12.03	6.90	6.95	53.71	26.25	17.60	12.60	5	14	20
			5	6	38	13.48	7.12	7.28	53.71	26.25	17.60	12.60	5	14	20
3		1	6	38	12.03	7.05	7.07	53.71	26.25	17.60	12.60	10	28	40	
		5	6	38	13.48	7.38	7.48	53.71	26.25	17.60	12.60	10	28	40	
4		1	6	38	12.03	7.13	7.13	53.71	26.25	17.60	12.60	16	43	60	
		5	6	38	13.48	7.56	7.62	53.71	26.25	17.60	12.60	16	43	60	
5		1	5	42	12.22	7.37	7.36	54.46	26.71	17.93	12.93	21	56	78	
		5	5	42	13.71	7.86	7.90	54.46	26.71	17.93	12.93	21	56	78	

1500 CHARACTER DATA RECORD 80K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	4	26	16.07	10.04	10.02	80.57	39.38	26.41	18.91	3	9	13	
		5	4	26	17.47	10.28	10.38	80.57	39.38	26.41	18.91	3	9	13	
	3	1	4	26	16.07	10.11	10.08	80.57	39.38	26.41	18.91	7	19	26	
		5	4	26	17.47	10.50	10.54	80.57	39.38	26.41	18.91	7	19	26	
	4	1	4	26	16.07	10.15	10.11	80.57	39.38	26.41	18.91	10	28	40	
		5	4	26	17.47	10.64	10.66	80.57	39.38	26.41	18.91	10	28	40	
	5	1	3	30	16.47	10.58	10.52	82.43	40.51	27.21	19.71	14	37	51	
		5	3	30	17.92	11.14	11.13	82.43	40.51	27.21	19.71	14	37	51	
	10	2	1	4	26	16.14	10.05	10.04	80.57	39.38	26.41	18.91	3	9	13
			5	4	26	17.53	10.29	10.40	80.57	39.38	26.41	18.91	3	9	13
3		1	4	26	16.14	10.14	10.11	80.57	39.38	26.41	18.91	7	19	26	
		5	4	26	17.53	10.52	10.57	80.57	39.38	26.41	18.91	7	19	26	
4		1	4	26	16.14	10.19	10.15	80.57	39.38	26.41	18.91	10	28	40	
		5	4	26	17.53	10.67	10.69	80.57	39.38	26.41	18.91	10	28	40	
5		1	3	30	16.55	10.62	10.56	82.43	40.51	27.21	19.71	14	37	51	
		5	3	30	17.99	11.17	11.16	82.43	40.51	27.21	19.71	14	37	51	
20		2	1	4	26	16.29	10.08	10.08	80.57	39.38	26.41	18.91	3	9	13
			5	4	26	17.65	10.32	10.43	80.57	39.38	26.41	18.91	3	9	13
	3	1	4	26	16.29	10.19	10.17	80.57	39.38	26.41	18.91	7	19	26	
		5	4	26	17.65	10.55	10.61	80.57	39.38	26.41	18.91	7	19	26	
	4	1	4	26	16.29	10.25	10.22	80.57	39.38	26.41	18.91	10	28	40	
		5	4	26	17.65	10.71	10.74	80.57	39.38	26.41	18.91	10	28	40	
	5	1	3	30	16.70	10.69	10.64	82.43	40.51	27.21	19.71	14	37	51	
		5	3	30	18.12	11.22	11.22	82.43	40.51	27.21	19.71	14	37	51	
	40	2	1	4	26	16.58	10.15	10.18	80.57	39.38	26.41	18.91	3	9	13
			5	4	26	17.90	10.36	10.50	80.57	39.38	26.41	18.91	3	9	13
3		1	4	26	16.58	10.29	10.29	80.57	39.38	26.41	18.91	7	19	26	
		5	4	26	17.90	10.63	10.70	80.57	39.38	26.41	18.91	7	19	26	
4		1	4	26	16.58	10.37	10.36	80.57	39.38	26.41	18.91	10	28	40	
		5	4	26	17.90	10.80	10.84	80.57	39.38	26.41	18.91	10	28	40	
5		1	3	30	17.00	10.84	10.80	82.43	40.51	27.21	19.71	14	37	51	
		5	3	30	18.38	11.33	11.34	82.43	40.51	27.21	19.71	14	37	51	

2000 CHARACTER DATA RECORD 80K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	3	20	20.71	13.28	13.24	107.43	52.51	35.21	25.21	2	7	10	
		5	3	20	22.02	13.52	13.60	107.43	52.51	35.21	25.21	2	7	10	
	3	1	3	20	20.71	13.36	13.30	107.43	52.51	35.21	25.21	5	14	20	
		5	3	20	22.02	13.74	13.77	107.43	52.51	35.21	25.21	5	14	20	
	4	1	3	20	20.71	13.40	13.34	107.43	52.51	35.21	25.21	8	21	30	
		5	3	20	22.02	13.88	13.89	107.43	52.51	35.21	25.21	8	21	30	
	5	1	2	22	21.44	14.20	14.11	111.15	54.77	36.82	26.82	10	27	38	
		5	2	22	22.78	14.77	14.72	111.15	54.77	36.82	26.82	10	27	38	
	10	2	1	3	20	20.78	13.30	13.26	107.43	52.51	35.21	25.21	2	7	10
			5	3	20	22.07	13.54	13.62	107.43	52.51	35.21	25.21	2	7	10
3		1	3	20	20.78	13.38	13.33	107.43	52.51	35.21	25.21	5	14	20	
		5	3	20	22.07	13.76	13.79	107.43	52.51	35.21	25.21	5	14	20	
4		1	3	20	20.78	13.43	13.37	107.43	52.51	35.21	25.21	8	21	30	
		5	3	20	22.07	13.91	13.91	107.43	52.51	35.21	25.21	8	21	30	
5		1	2	22	21.51	14.24	14.15	111.15	54.77	36.82	26.82	10	27	38	
		5	2	22	22.84	14.79	14.75	111.15	54.77	36.82	26.82	10	27	38	
20		2	1	3	20	20.91	13.33	13.31	107.43	52.51	35.21	25.21	2	7	10
			5	3	20	22.19	13.56	13.66	107.43	52.51	35.21	25.21	2	7	10
	3	1	3	20	20.91	13.43	13.39	107.43	52.51	35.21	25.21	5	14	20	
		5	3	20	22.19	13.80	13.83	107.43	52.51	35.21	25.21	5	14	20	
	4	1	3	20	20.91	13.49	13.44	107.43	52.51	35.21	25.21	8	21	30	
		5	3	20	22.19	13.95	13.96	107.43	52.51	35.21	25.21	8	21	30	
	5	1	2	22	21.65	14.31	14.23	111.15	54.77	36.82	26.82	10	27	38	
		5	2	22	22.96	14.85	14.81	111.15	54.77	36.82	26.82	10	27	38	
	40	2	1	3	20	21.19	13.39	13.40	107.43	52.51	35.21	25.21	2	7	10
			5	3	20	22.43	13.61	13.73	107.43	52.51	35.21	25.21	2	7	10
3		1	3	20	21.19	13.54	13.52	107.43	52.51	35.21	25.21	5	14	20	
		5	3	20	22.43	13.87	13.92	107.43	52.51	35.21	25.21	5	14	20	
4		1	3	20	21.19	13.61	13.58	107.43	52.51	35.21	25.21	8	21	30	
		5	3	20	22.43	14.05	14.07	107.43	52.51	35.21	25.21	8	21	30	
5		1	2	22	21.94	14.46	14.39	111.15	54.77	36.82	26.82	10	27	38	
		5	2	22	23.20	14.95	14.93	111.15	54.77	36.82	26.82	10	27	38	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECCNDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	300	2006	3.79	.44	.47	1.07	.52	.35	.25	269	717	1003	
		5	300	2006	6.73	.68	.84	1.07	.52	.35	.25	269	717	1003	
	3	1	300	2006	3.79	.51	.53	1.07	.52	.35	.25	538	1434	2007	
		5	300	2006	6.73	.90	1.00	1.07	.52	.35	.25	538	1434	2007	
	4	1	300	2006	3.79	.55	.57	1.07	.52	.35	.25	807	2152	3010	
		5	300	2006	6.73	1.04	1.12	1.07	.52	.35	.25	807	2152	3010	
	5	1	300	2006	3.79	.60	.61	1.07	.52	.35	.25	1077	2869	4014	
		5	300	2006	6.73	1.16	1.23	1.07	.52	.35	.25	1077	2869	4014	
	10	2	1	300	2006	3.94	.45	.49	1.07	.52	.35	.25	269	717	1003
			5	300	2006	6.86	.69	.85	1.07	.52	.35	.25	269	717	1003
3		1	300	2006	3.94	.54	.57	1.07	.52	.35	.25	538	1434	2007	
		5	300	2006	6.86	.92	1.02	1.07	.52	.35	.25	538	1434	2007	
4		1	300	2006	3.94	.59	.61	1.07	.52	.35	.25	807	2152	3010	
		5	300	2006	6.86	1.06	1.15	1.07	.52	.35	.25	807	2152	3010	
5		1	300	2006	3.94	.64	.65	1.07	.52	.35	.25	1077	2869	4014	
		5	300	2006	6.86	1.19	1.26	1.07	.52	.35	.25	1077	2869	4014	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECCNDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	200	1504	3.76	.50	.54	1.61	.78	.52	.37	179	478	669	
		5	200	1504	6.60	.75	.90	1.61	.78	.52	.37	179	478	669	
	3	1	200	1504	3.76	.58	.60	1.61	.78	.52	.37	359	956	1338	
		5	200	1504	6.60	.96	1.06	1.61	.78	.52	.37	359	956	1338	
	4	1	200	1504	3.76	.62	.64	1.61	.78	.52	.37	538	1434	2007	
		5	200	1504	6.60	1.11	1.18	1.61	.78	.52	.37	538	1434	2007	
	5	1	200	1504	3.76	.66	.68	1.61	.78	.52	.37	718	1913	2676	
		5	200	1504	6.60	1.23	1.29	1.61	.78	.52	.37	718	1913	2676	
	10	2	1	200	1504	3.91	.52	.56	1.61	.78	.52	.37	179	478	669
			5	200	1504	6.73	.76	.92	1.61	.78	.52	.37	179	478	669
3		1	200	1504	3.91	.60	.63	1.61	.78	.52	.37	359	956	1338	
		5	200	1504	6.73	.98	1.09	1.61	.78	.52	.37	359	956	1338	
4		1	200	1504	3.91	.65	.67	1.61	.78	.52	.37	538	1434	2007	
		5	200	1504	6.73	1.13	1.21	1.61	.78	.52	.37	538	1434	2007	
5		1	200	1504	3.91	.70	.72	1.61	.78	.52	.37	718	1913	2676	
		5	200	1504	6.73	1.26	1.32	1.61	.78	.52	.37	718	1913	2676	
20		2	1	200	1504	4.20	.55	.61	1.61	.78	.52	.37	179	478	669
			5	200	1504	6.98	.78	.95	1.61	.78	.52	.37	179	478	669
	3	1	200	1504	4.20	.65	.69	1.61	.78	.52	.37	359	956	1338	
		5	200	1504	6.98	1.02	1.13	1.61	.78	.52	.37	359	956	1338	
	4	1	200	1504	4.20	.71	.74	1.61	.78	.52	.37	538	1434	2007	
		5	200	1504	6.98	1.18	1.26	1.61	.78	.52	.37	538	1434	2007	
	5	1	200	1504	4.20	.78	.80	1.61	.78	.52	.37	718	1913	2676	
		5	200	1504	6.98	1.31	1.38	1.61	.78	.52	.37	718	1913	2676	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECCNDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	150	1204	3.77	.57	.60	2.14	1.05	.70	.50	134	358	501	
		5	150	1204	6.53	.81	.97	2.14	1.05	.70	.50	134	358	501	
	3	1	150	1204	3.77	.64	.66	2.14	1.05	.70	.50	269	717	1003	
		5	150	1204	6.53	1.03	1.13	2.14	1.05	.70	.50	269	717	1003	
	4	1	150	1204	3.77	.68	.70	2.14	1.05	.70	.50	403	1076	1505	
		5	150	1204	6.53	1.17	1.25	2.14	1.05	.70	.50	403	1076	1505	
	5	1	150	1204	3.77	.73	.74	2.14	1.05	.70	.50	538	1434	2007	
		5	150	1204	6.53	1.29	1.36	2.14	1.05	.70	.50	538	1434	2007	
	10	2	1	150	1204	3.91	.58	.62	2.14	1.05	.70	.50	134	358	501
			5	150	1204	6.65	.82	.98	2.14	1.05	.70	.50	134	358	501
3		1	150	1204	3.91	.67	.69	2.14	1.05	.70	.50	269	717	1003	
		5	150	1204	6.65	1.05	1.15	2.14	1.05	.70	.50	269	717	1003	
4		1	150	1204	3.91	.72	.73	2.14	1.05	.70	.50	403	1076	1505	
		5	150	1204	6.65	1.19	1.27	2.14	1.05	.70	.50	403	1076	1505	
5		1	150	1204	3.91	.77	.78	2.14	1.05	.70	.50	538	1434	2007	
		5	150	1204	6.65	1.32	1.38	2.14	1.05	.70	.50	538	1434	2007	
20		2	1	150	1204	4.19	.61	.67	2.14	1.05	.70	.50	134	358	501
			5	150	1204	6.90	.85	1.02	2.14	1.05	.70	.50	134	358	501
	3	1	150	1204	4.19	.72	.76	2.14	1.05	.70	.50	269	717	1003	
		5	150	1204	6.90	1.08	1.20	2.14	1.05	.70	.50	269	717	1003	
	4	1	150	1204	4.19	.78	.80	2.14	1.05	.70	.50	403	1076	1505	
		5	150	1204	6.90	1.24	1.33	2.14	1.05	.70	.50	403	1076	1505	
	5	1	150	1204	4.19	.84	.86	2.14	1.05	.70	.50	538	1434	2007	
		5	150	1204	6.90	1.37	1.44	2.14	1.05	.70	.50	538	1434	2007	

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CW LNG	MRG ORD	NO. CF	B		PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF			
					MILLISECONDS/RECORD			MILLISECCNDS/RECORD				RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	120	1002	3.79	.63	.67	2.68	1.31	.88	.63	107	286	401	
		5	120	1002	6.48	.88	1.03	2.68	1.31	.88	.63	107	286	401	
	3	1	120	1002	3.79	.71	.73	2.68	1.31	.88	.63	215	573	802	
		5	120	1002	6.48	1.09	1.19	2.68	1.31	.88	.63	215	573	802	
	4	1	120	1002	3.79	.75	.76	2.68	1.31	.88	.63	323	860	1204	
		5	120	1002	6.48	1.24	1.31	2.68	1.31	.88	.63	323	860	1204	
	5	1	120	1002	3.79	.79	.81	2.68	1.31	.88	.63	430	1147	1605	
		5	120	1002	6.48	1.36	1.42	2.68	1.31	.88	.63	430	1147	1605	
	10	2	1	120	1002	3.93	.65	.69	2.68	1.31	.88	.63	107	286	401
			5	120	1002	6.60	.89	1.05	2.68	1.31	.88	.63	107	286	401
3		1	120	1002	3.93	.73	.76	2.68	1.31	.88	.63	215	573	802	
		5	120	1002	6.60	1.11	1.22	2.68	1.31	.88	.63	215	573	802	
4		1	120	1002	3.93	.78	.80	2.68	1.31	.88	.63	323	860	1204	
		5	120	1002	6.60	1.26	1.34	2.68	1.31	.88	.63	323	860	1204	
5		1	120	1002	3.93	.83	.85	2.68	1.31	.88	.63	430	1147	1605	
		5	120	1002	6.60	1.39	1.45	2.68	1.31	.88	.63	430	1147	1605	
20		2	1	120	1002	4.20	.68	.73	2.68	1.31	.88	.63	107	286	401
			5	120	1002	6.84	.91	1.08	2.68	1.31	.88	.63	107	286	401
	3	1	120	1002	4.20	.78	.82	2.68	1.31	.88	.63	215	573	802	
		5	120	1002	6.84	1.15	1.26	2.68	1.31	.88	.63	215	573	802	
	4	1	120	1002	4.20	.84	.87	2.68	1.31	.88	.63	323	860	1204	
		5	120	1002	6.84	1.31	1.39	2.68	1.31	.88	.63	323	860	1204	
	5	1	120	1002	4.20	.90	.93	2.68	1.31	.88	.63	430	1147	1605	
		5	120	1002	6.84	1.44	1.51	2.68	1.31	.88	.63	430	1147	1605	
	40	2	1	120	1002	4.75	.74	.83	2.68	1.31	.88	.63	107	286	401
			5	120	1002	7.32	.96	1.15	2.68	1.31	.88	.63	107	286	401
3		1	120	1002	4.75	.89	.94	2.68	1.31	.88	.63	215	573	802	
		5	120	1002	7.32	1.22	1.35	2.68	1.31	.88	.63	215	573	802	
4		1	120	1002	4.75	.96	1.01	2.68	1.31	.88	.63	323	860	1204	
		5	120	1002	7.32	1.40	1.49	2.68	1.31	.88	.63	323	860	1204	
5		1	120	1002	4.75	1.05	1.09	2.68	1.31	.88	.63	430	1147	1605	
		5	120	1002	7.32	1.55	1.62	2.68	1.31	.88	.63	430	1147	1605	

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CW LNG	MRG ORD	NO. CF	B		PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF			
					MILLISECONDS/RECORD			MILLISECCNDS/RECORD				RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	100	860	3.82	.70	.73	3.22	1.57	1.05	.75	89	239	334	
		5	100	860	6.46	.94	1.09	3.22	1.57	1.05	.75	89	239	334	
	3	1	100	860	3.82	.77	.79	3.22	1.57	1.05	.75	179	478	669	
		5	100	860	6.46	1.16	1.26	3.22	1.57	1.05	.75	179	478	669	
	4	1	100	860	3.82	.81	.83	3.22	1.57	1.05	.75	269	717	1003	
		5	100	860	6.46	1.30	1.38	3.22	1.57	1.05	.75	269	717	1003	
	5	1	100	860	3.82	.86	.87	3.22	1.57	1.05	.75	359	956	1338	
		5	100	860	6.46	1.42	1.48	3.22	1.57	1.05	.75	359	956	1338	
	10	2	1	100	860	3.95	.71	.75	3.22	1.57	1.05	.75	89	239	334
			5	100	860	6.58	.95	1.11	3.22	1.57	1.05	.75	89	239	334
3		1	100	860	3.95	.80	.82	3.22	1.57	1.05	.75	179	478	669	
		5	100	860	6.58	1.17	1.28	3.22	1.57	1.05	.75	179	478	669	
4		1	100	860	3.95	.84	.86	3.22	1.57	1.05	.75	269	717	1003	
		5	100	860	6.58	1.32	1.40	3.22	1.57	1.05	.75	269	717	1003	
5		1	100	860	3.95	.90	.91	3.22	1.57	1.05	.75	359	956	1338	
		5	100	860	6.58	1.45	1.51	3.22	1.57	1.05	.75	359	956	1338	
20		2	1	100	860	4.23	.74	.80	3.22	1.57	1.05	.75	89	239	334
			5	100	860	6.81	.98	1.15	3.22	1.57	1.05	.75	89	239	334
	3	1	100	860	4.23	.85	.89	3.22	1.57	1.05	.75	179	478	669	
		5	100	860	6.81	1.21	1.33	3.22	1.57	1.05	.75	179	478	669	
	4	1	100	860	4.23	.91	.93	3.22	1.57	1.05	.75	269	717	1003	
		5	100	860	6.81	1.37	1.45	3.22	1.57	1.05	.75	269	717	1003	
	5	1	100	860	4.23	.97	.99	3.22	1.57	1.05	.75	359	956	1338	
		5	100	860	6.81	1.50	1.57	3.22	1.57	1.05	.75	359	956	1338	
	40	2	1	100	860	4.77	.81	.89	3.22	1.57	1.05	.75	89	239	334
			5	100	860	7.28	1.02	1.22	3.22	1.57	1.05	.75	89	239	334
3		1	100	860	4.77	.95	1.01	3.22	1.57	1.05	.75	179	478	669	
		5	100	860	7.28	1.29	1.41	3.22	1.57	1.05	.75	179	478	669	
4		1	100	860	4.77	1.03	1.07	3.22	1.57	1.05	.75	269	717	1003	
		5	100	860	7.28	1.46	1.56	3.22	1.57	1.05	.75	269	717	1003	
5		1	100	860	4.77	1.12	1.15	3.22	1.57	1.05	.75	359	956	1338	
		5	100	860	7.28	1.61	1.69	3.22	1.57	1.05	.75	359	956	1338	

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CW LNG	MRG ORD	NO. CF				PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G		PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	85	754	3.86	.76	.79	3.76	1.83	1.23	.88	76	204	286	
		5	85	754	6.46	1.01	1.16	3.76	1.83	1.23	.88	76	204	286	
	3	1	85	754	3.86	.84	.86	3.76	1.83	1.23	.88	153	409	573	
		5	85	754	6.46	1.22	1.32	3.76	1.83	1.23	.88	153	409	573	
	4	1	85	754	3.86	.88	.89	3.76	1.83	1.23	.88	230	614	859	
5		85	754	6.46	1.37	1.44	3.76	1.83	1.23	.88	230	614	859		
5	1	85	754	3.86	.92	.94	3.76	1.83	1.23	.88	307	819	1146		
	5	85	754	6.46	1.49	1.55	3.76	1.83	1.23	.88	307	819	1146		
10	2	1	85	754	3.99	.78	.82	3.76	1.83	1.23	.88	76	204	286	
		5	85	754	6.57	1.02	1.18	3.76	1.83	1.23	.88	76	204	286	
	3	1	85	754	3.99	.86	.89	3.76	1.83	1.23	.88	153	409	573	
		5	85	754	6.57	1.24	1.35	3.76	1.83	1.23	.88	153	409	573	
	4	1	85	754	3.99	.91	.93	3.76	1.83	1.23	.88	230	614	859	
5		85	754	6.57	1.39	1.47	3.76	1.83	1.23	.88	230	614	859		
5	1	85	754	3.99	.96	.98	3.76	1.83	1.23	.88	307	819	1146		
	5	85	754	6.57	1.52	1.58	3.76	1.83	1.23	.88	307	819	1146		
20	2	1	85	754	4.26	.81	.86	3.76	1.83	1.23	.88	76	204	286	
		5	85	754	6.80	1.04	1.21	3.76	1.83	1.23	.88	76	204	286	
	3	1	85	754	4.26	.91	.95	3.76	1.83	1.23	.88	153	409	573	
		5	85	754	6.80	1.28	1.39	3.76	1.83	1.23	.88	153	409	573	
	4	1	85	754	4.26	.97	1.00	3.76	1.83	1.23	.88	230	614	859	
5		85	754	6.80	1.44	1.52	3.76	1.83	1.23	.88	230	614	859		
5	1	85	754	4.26	1.04	1.06	3.76	1.83	1.23	.88	307	819	1146		
	5	85	754	6.80	1.57	1.64	3.76	1.83	1.23	.88	307	819	1146		
40	2	1	85	754	4.79	.87	.96	3.76	1.83	1.23	.88	76	204	286	
		5	85	754	7.26	1.09	1.28	3.76	1.83	1.23	.88	76	204	286	
	3	1	85	754	4.79	1.02	1.07	3.76	1.83	1.23	.88	153	409	573	
		5	85	754	7.26	1.35	1.48	3.76	1.83	1.23	.88	153	409	573	
	4	1	85	754	4.79	1.10	1.14	3.76	1.83	1.23	.88	230	614	859	
5		85	754	7.26	1.53	1.62	3.76	1.83	1.23	.88	230	614	859		
5	1	85	754	4.79	1.18	1.22	3.76	1.83	1.23	.88	307	819	1146		
	5	85	754	7.26	1.68	1.75	3.76	1.83	1.23	.88	307	819	1146		

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CW LNG	MRG ORD	NO. CF				PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
			B	G		PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	75	668	3.91	.83	.86	4.29	2.10	1.40	1.00	67	179	250	
		5	75	668	6.46	1.07	1.22	4.29	2.10	1.40	1.00	67	179	250	
	3	1	75	668	3.91	.90	.92	4.29	2.10	1.40	1.00	134	358	501	
		5	75	668	6.46	1.29	1.39	4.29	2.10	1.40	1.00	134	358	501	
	4	1	75	668	3.91	.94	.96	4.29	2.10	1.40	1.00	201	538	752	
5		75	668	6.46	1.43	1.51	4.29	2.10	1.40	1.00	201	538	752		
5	1	75	668	3.91	.99	1.00	4.29	2.10	1.40	1.00	269	717	1003		
	5	75	668	6.46	1.55	1.61	4.29	2.10	1.40	1.00	269	717	1003		
10	2	1	75	668	4.04	.84	.88	4.29	2.10	1.40	1.00	67	179	250	
		5	75	668	6.57	1.08	1.24	4.29	2.10	1.40	1.00	67	179	250	
	3	1	75	668	4.04	.93	.95	4.29	2.10	1.40	1.00	134	358	501	
		5	75	668	6.57	1.30	1.41	4.29	2.10	1.40	1.00	134	358	501	
	4	1	75	668	4.04	.97	.99	4.29	2.10	1.40	1.00	201	538	752	
5		75	668	6.57	1.45	1.53	4.29	2.10	1.40	1.00	201	538	752		
5	1	75	668	4.04	1.03	1.04	4.29	2.10	1.40	1.00	269	717	1003		
	5	75	668	6.57	1.58	1.64	4.29	2.10	1.40	1.00	269	717	1003		
20	2	1	75	668	4.30	.87	.93	4.29	2.10	1.40	1.00	67	179	250	
		5	75	668	6.80	1.11	1.28	4.29	2.10	1.40	1.00	67	179	250	
	3	1	75	668	4.30	.98	1.01	4.29	2.10	1.40	1.00	134	358	501	
		5	75	668	6.80	1.34	1.45	4.29	2.10	1.40	1.00	134	358	501	
	4	1	75	668	4.30	1.04	1.06	4.29	2.10	1.40	1.00	201	538	752	
5		75	668	6.80	1.50	1.58	4.29	2.10	1.40	1.00	201	538	752		
5	1	75	668	4.30	1.10	1.12	4.29	2.10	1.40	1.00	269	717	1003		
	5	75	668	6.80	1.63	1.70	4.29	2.10	1.40	1.00	269	717	1003		
40	2	1	75	668	4.82	.93	1.02	4.29	2.10	1.40	1.00	67	179	250	
		5	75	668	7.25	1.15	1.34	4.29	2.10	1.40	1.00	67	179	250	
	3	1	75	668	4.82	1.08	1.14	4.29	2.10	1.40	1.00	134	358	501	
		5	75	668	7.25	1.42	1.54	4.29	2.10	1.40	1.00	134	358	501	
	4	1	75	668	4.82	1.16	1.20	4.29	2.10	1.40	1.00	201	538	752	
5		75	668	7.25	1.59	1.69	4.29	2.10	1.40	1.00	201	538	752		
5	1	75	668	4.82	1.25	1.28	4.29	2.10	1.40	1.00	269	717	1003		
	5	75	668	7.25	1.74	1.82	4.29	2.10	1.40	1.00	269	717	1003		

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	66	604	3.96	.89	.92	4.83	2.36	1.58	1.13	59	159	222	
		5	66	604	6.48	1.14	1.29	4.83	2.36	1.58	1.13	59	159	222	
	3	1	66	604	3.96	.97	.99	4.83	2.36	1.58	1.13	119	318	445	
		5	66	604	6.48	1.35	1.45	4.83	2.36	1.58	1.13	119	318	445	
	4	1	66	604	3.96	1.01	1.02	4.83	2.36	1.58	1.13	179	477	668	
		5	66	604	6.48	1.50	1.57	4.83	2.36	1.58	1.13	179	477	668	
	5	1	66	604	3.96	1.05	1.06	4.83	2.36	1.58	1.13	239	637	891	
		5	66	604	6.48	1.62	1.68	4.83	2.36	1.58	1.13	239	637	891	
	10	2	1	66	604	4.09	.91	.95	4.83	2.36	1.58	1.13	59	159	222
			5	66	604	6.59	1.15	1.31	4.83	2.36	1.58	1.13	59	159	222
3		1	66	604	4.09	.99	1.02	4.83	2.36	1.58	1.13	119	318	445	
		5	66	604	6.59	1.37	1.47	4.83	2.36	1.58	1.13	119	318	445	
4		1	66	604	4.09	1.04	1.06	4.83	2.36	1.58	1.13	179	477	668	
		5	66	604	6.59	1.52	1.60	4.83	2.36	1.58	1.13	179	477	668	
5		1	66	604	4.09	1.09	1.10	4.83	2.36	1.58	1.13	239	637	891	
		5	66	604	6.59	1.65	1.71	4.83	2.36	1.58	1.13	239	637	891	
20		2	1	66	604	4.35	.94	.99	4.83	2.36	1.58	1.13	59	159	222
			5	66	604	6.81	1.17	1.34	4.83	2.36	1.58	1.13	59	159	222
	3	1	66	604	4.35	1.04	1.08	4.83	2.36	1.58	1.13	119	318	445	
		5	66	604	6.81	1.41	1.52	4.83	2.36	1.58	1.13	119	318	445	
	4	1	66	604	4.35	1.10	1.13	4.83	2.36	1.58	1.13	179	477	668	
		5	66	604	6.81	1.57	1.65	4.83	2.36	1.58	1.13	179	477	668	
	5	1	66	604	4.35	1.16	1.18	4.83	2.36	1.58	1.13	239	637	891	
		5	66	604	6.81	1.70	1.77	4.83	2.36	1.58	1.13	239	637	891	
	40	2	1	66	604	4.86	1.00	1.09	4.83	2.36	1.58	1.13	59	159	222
			5	66	604	7.26	1.22	1.41	4.83	2.36	1.58	1.13	59	159	222
3		1	66	604	4.86	1.15	1.20	4.83	2.36	1.58	1.13	119	318	445	
		5	66	604	7.26	1.48	1.61	4.83	2.36	1.58	1.13	119	318	445	
4		1	66	604	4.86	1.23	1.27	4.83	2.36	1.58	1.13	179	477	668	
		5	66	604	7.26	1.66	1.75	4.83	2.36	1.58	1.13	179	477	668	
5		1	66	604	4.86	1.31	1.34	4.83	2.36	1.58	1.13	239	637	891	
		5	66	604	7.26	1.81	1.88	4.83	2.36	1.58	1.13	239	637	891	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	60	546	4.01	.96	.99	5.37	2.62	1.76	1.26	53	143	200	
		5	60	546	6.49	1.20	1.35	5.37	2.62	1.76	1.26	53	143	200	
	3	1	60	546	4.01	1.03	1.05	5.37	2.62	1.76	1.26	107	286	401	
		5	60	546	6.49	1.42	1.52	5.37	2.62	1.76	1.26	107	286	401	
	4	1	60	546	4.01	1.07	1.09	5.37	2.62	1.76	1.26	161	430	602	
		5	60	546	6.49	1.56	1.64	5.37	2.62	1.76	1.26	161	430	602	
	5	1	60	546	4.01	1.12	1.13	5.37	2.62	1.76	1.26	215	573	802	
		5	60	546	6.49	1.68	1.74	5.37	2.62	1.76	1.26	215	573	802	
	10	2	1	60	546	4.14	.97	1.01	5.37	2.62	1.76	1.26	53	143	200
			5	60	546	6.60	1.21	1.37	5.37	2.62	1.76	1.26	53	143	200
3		1	60	546	4.14	1.06	1.08	5.37	2.62	1.76	1.26	107	286	401	
		5	60	546	6.60	1.43	1.54	5.37	2.62	1.76	1.26	107	286	401	
4		1	60	546	4.14	1.10	1.12	5.37	2.62	1.76	1.26	161	430	602	
		5	60	546	6.60	1.58	1.66	5.37	2.62	1.76	1.26	161	430	602	
5		1	60	546	4.14	1.16	1.17	5.37	2.62	1.76	1.26	215	573	802	
		5	60	546	6.60	1.71	1.77	5.37	2.62	1.76	1.26	215	573	802	
20		2	1	60	546	4.39	1.00	1.06	5.37	2.62	1.76	1.26	53	143	200
			5	60	546	6.82	1.23	1.40	5.37	2.62	1.76	1.26	53	143	200
	3	1	60	546	4.39	1.11	1.14	5.37	2.62	1.76	1.26	107	286	401	
		5	60	546	6.82	1.47	1.58	5.37	2.62	1.76	1.26	107	286	401	
	4	1	60	546	4.39	1.17	1.19	5.37	2.62	1.76	1.26	161	430	602	
		5	60	546	6.82	1.63	1.71	5.37	2.62	1.76	1.26	161	430	602	
	5	1	60	546	4.39	1.23	1.25	5.37	2.62	1.76	1.26	215	573	802	
		5	60	546	6.82	1.76	1.83	5.37	2.62	1.76	1.26	215	573	802	
	40	2	1	60	546	4.90	1.06	1.15	5.37	2.62	1.76	1.26	53	143	200
			5	60	546	7.27	1.28	1.47	5.37	2.62	1.76	1.26	53	143	200
3		1	60	546	4.90	1.21	1.27	5.37	2.62	1.76	1.26	107	286	401	
		5	60	546	7.27	1.55	1.67	5.37	2.62	1.76	1.26	107	286	401	
4		1	60	546	4.90	1.29	1.33	5.37	2.62	1.76	1.26	161	430	602	
		5	60	546	7.27	1.72	1.82	5.37	2.62	1.76	1.26	161	430	602	
5		1	60	546	4.90	1.38	1.41	5.37	2.62	1.76	1.26	215	573	802	
		5	60	546	7.27	1.87	1.95	5.37	2.62	1.76	1.26	215	573	802	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	50	462	4.13	1.09	1.12	6.44	3.15	2.11	1.51	44	119	167	
		5	50	462	6.56	1.33	1.48	6.44	3.15	2.11	1.51	44	119	167	
	3	1	50	462	4.13	1.16	1.18	6.44	3.15	2.11	1.51	89	239	334	
		5	50	462	6.56	1.55	1.65	6.44	3.15	2.11	1.51	89	239	334	
		5	50	462	4.13	1.20	1.22	6.44	3.15	2.11	1.51	134	358	501	
	4	1	50	462	4.13	1.69	1.76	6.44	3.15	2.11	1.51	134	358	501	
		5	50	462	4.13	1.25	1.26	6.44	3.15	2.11	1.51	179	478	669	
	5	1	50	462	4.13	1.25	1.26	6.44	3.15	2.11	1.51	179	478	669	
		5	50	462	6.56	1.81	1.87	6.44	3.15	2.11	1.51	179	478	669	
	10	2	1	50	462	4.26	1.10	1.14	6.44	3.15	2.11	1.51	44	119	167
5			50	462	6.66	1.34	1.50	6.44	3.15	2.11	1.51	44	119	167	
3		1	50	462	4.26	1.19	1.21	6.44	3.15	2.11	1.51	89	239	334	
		5	50	462	6.66	1.56	1.67	6.44	3.15	2.11	1.51	89	239	334	
4		1	50	462	4.26	1.23	1.25	6.44	3.15	2.11	1.51	134	358	501	
		5	50	462	6.66	1.71	1.79	6.44	3.15	2.11	1.51	134	358	501	
5		1	50	462	4.26	1.29	1.30	6.44	3.15	2.11	1.51	179	478	669	
		5	50	462	6.66	1.84	1.90	6.44	3.15	2.11	1.51	179	478	669	
20		2	1	50	462	4.51	1.13	1.19	6.44	3.15	2.11	1.51	44	119	167
			5	50	462	6.88	1.36	1.53	6.44	3.15	2.11	1.51	44	119	167
	3	1	50	462	4.51	1.24	1.27	6.44	3.15	2.11	1.51	89	239	334	
		5	50	462	6.88	1.60	1.71	6.44	3.15	2.11	1.51	89	239	334	
	4	1	50	462	4.51	1.30	1.32	6.44	3.15	2.11	1.51	134	358	501	
		5	50	462	6.88	1.76	1.84	6.44	3.15	2.11	1.51	134	358	501	
	5	1	50	462	4.51	1.36	1.38	6.44	3.15	2.11	1.51	179	478	669	
		5	50	462	6.88	1.89	1.96	6.44	3.15	2.11	1.51	179	478	669	
	40	2	1	50	462	5.01	1.19	1.28	6.44	3.15	2.11	1.51	44	119	167
			5	50	462	7.31	1.41	1.60	6.44	3.15	2.11	1.51	44	119	167
3		1	50	462	5.01	1.34	1.40	6.44	3.15	2.11	1.51	89	239	334	
		5	50	462	7.31	1.67	1.80	6.44	3.15	2.11	1.51	89	239	334	
4		1	50	462	5.01	1.42	1.46	6.44	3.15	2.11	1.51	134	358	501	
		5	50	462	7.31	1.85	1.94	6.44	3.15	2.11	1.51	134	358	501	
5		1	50	462	5.01	1.51	1.54	6.44	3.15	2.11	1.51	179	478	669	
		5	50	462	7.31	2.00	2.08	6.44	3.15	2.11	1.51	179	478	669	

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CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	42	404	4.27	1.22	1.25	7.53	3.68	2.46	1.76	38	102	143	
		5	42	404	6.64	1.46	1.61	7.53	3.68	2.46	1.76	38	102	143	
	3	1	42	404	4.27	1.29	1.31	7.53	3.68	2.46	1.76	76	204	286	
		5	42	404	6.64	1.68	1.78	7.53	3.68	2.46	1.76	76	204	286	
	4	1	42	404	4.27	1.34	1.35	7.53	3.68	2.46	1.76	115	307	429	
		5	42	404	6.64	1.82	1.90	7.53	3.68	2.46	1.76	115	307	429	
	5	1	42	404	4.27	1.38	1.39	7.53	3.68	2.46	1.76	153	409	572	
		5	42	404	6.64	1.94	2.00	7.53	3.68	2.46	1.76	153	409	572	
	10	2	1	42	404	4.39	1.23	1.27	7.53	3.68	2.46	1.76	38	102	143
			5	42	404	6.75	1.47	1.63	7.53	3.68	2.46	1.76	38	102	143
3		1	42	404	4.39	1.32	1.34	7.53	3.68	2.46	1.76	76	204	286	
		5	42	404	6.75	1.70	1.80	7.53	3.68	2.46	1.76	76	204	286	
4		1	42	404	4.39	1.37	1.38	7.53	3.68	2.46	1.76	115	307	429	
		5	42	404	6.75	1.85	1.92	7.53	3.68	2.46	1.76	115	307	429	
5		1	42	404	4.39	1.42	1.43	7.53	3.68	2.46	1.76	153	409	572	
		5	42	404	6.75	1.97	2.03	7.53	3.68	2.46	1.76	153	409	572	
20		2	1	42	404	4.64	1.26	1.32	7.53	3.68	2.46	1.76	38	102	143
			5	42	404	6.96	1.50	1.66	7.53	3.68	2.46	1.76	38	102	143
	3	1	42	404	4.64	1.37	1.40	7.53	3.68	2.46	1.76	76	204	286	
		5	42	404	6.96	1.73	1.84	7.53	3.68	2.46	1.76	76	204	286	
	4	1	42	404	4.64	1.43	1.45	7.53	3.68	2.46	1.76	115	307	429	
		5	42	404	6.96	1.89	1.97	7.53	3.68	2.46	1.76	115	307	429	
	5	1	42	404	4.64	1.49	1.51	7.53	3.68	2.46	1.76	153	409	572	
		5	42	404	6.96	2.03	2.09	7.53	3.68	2.46	1.76	153	409	572	
	40	2	1	42	404	5.13	1.33	1.41	7.53	3.68	2.46	1.76	38	102	143
			5	42	404	7.38	1.54	1.73	7.53	3.68	2.46	1.76	38	102	143
3		1	42	404	5.13	1.47	1.53	7.53	3.68	2.46	1.76	76	204	286	
		5	42	404	7.38	1.81	1.93	7.53	3.68	2.46	1.76	76	204	286	
4		1	42	404	5.13	1.55	1.59	7.53	3.68	2.46	1.76	115	307	429	
		5	42	404	7.38	1.98	2.08	7.53	3.68	2.46	1.76	115	307	429	
5		1	42	404	5.13	1.64	1.67	7.53	3.68	2.46	1.76	153	409	572	
		5	42	404	7.38	2.13	2.21	7.53	3.68	2.46	1.76	153	409	572	

160 CHARACTER DATA RECORD 100K 7010

CW LNG	MRG ORD	NO. CF	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF					
			B	G	MILLISECONDS/RECORD	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	37	356	4.41	1.35	1.38	8.60	4.20	2.82	2.02	33	89	125	
		5	37	356	6.74	1.59	1.74	8.60	4.20	2.82	2.02	33	89	125	
		1	37	356	4.41	1.42	1.44	8.60	4.20	2.82	2.02	67	179	250	
	4	5	37	356	6.74	1.81	1.90	8.60	4.20	2.82	2.02	67	179	250	
		1	37	356	4.41	1.46	1.48	8.60	4.20	2.82	2.02	100	268	375	
		5	37	356	6.74	1.95	2.02	8.60	4.20	2.82	2.02	100	268	375	
	5	1	37	356	4.41	1.51	1.52	8.60	4.20	2.82	2.02	134	358	501	
		5	37	356	6.74	2.07	2.13	8.60	4.20	2.82	2.02	134	358	501	
	10	2	1	37	356	4.53	1.36	1.40	8.60	4.20	2.82	2.02	33	89	125
			5	37	356	6.84	1.60	1.76	8.60	4.20	2.82	2.02	33	89	125
			1	37	356	4.53	1.45	1.47	8.60	4.20	2.82	2.02	67	179	250
		3	5	37	356	6.84	1.82	1.93	8.60	4.20	2.82	2.02	67	179	250
			1	37	356	4.53	1.50	1.51	8.60	4.20	2.82	2.02	100	268	375
			5	37	356	6.84	1.97	2.05	8.60	4.20	2.82	2.02	100	268	375
		4	1	37	356	4.53	1.55	1.56	8.60	4.20	2.82	2.02	134	358	501
5			37	356	6.84	2.10	2.16	8.60	4.20	2.82	2.02	134	358	501	
20		2	1	37	356	4.77	1.39	1.45	8.60	4.20	2.82	2.02	33	89	125
			5	37	356	7.05	1.63	1.79	8.60	4.20	2.82	2.02	33	89	125
			1	37	356	4.77	1.50	1.53	8.60	4.20	2.82	2.02	67	179	250
		3	5	37	356	7.05	1.86	1.97	8.60	4.20	2.82	2.02	67	179	250
			1	37	356	4.77	1.56	1.58	8.60	4.20	2.82	2.02	100	268	375
			5	37	356	7.05	2.02	2.10	8.60	4.20	2.82	2.02	100	268	375
		4	1	37	356	4.77	1.62	1.64	8.60	4.20	2.82	2.02	134	358	501
	5		37	356	7.05	2.15	2.22	8.60	4.20	2.82	2.02	134	358	501	
	40	2	1	37	356	5.25	1.46	1.54	8.60	4.20	2.82	2.02	33	89	125
			5	37	356	7.46	1.67	1.86	8.60	4.20	2.82	2.02	33	89	125
			1	37	356	5.25	1.60	1.66	8.60	4.20	2.82	2.02	67	179	250
		3	5	37	356	7.46	1.94	2.06	8.60	4.20	2.82	2.02	67	179	250
			1	37	356	5.25	1.68	1.72	8.60	4.20	2.82	2.02	100	268	375
			5	37	356	7.46	2.11	2.20	8.60	4.20	2.82	2.02	100	268	375
		4	1	37	356	5.25	1.77	1.80	8.60	4.20	2.82	2.02	134	358	501
5			37	356	7.46	2.26	2.33	8.60	4.20	2.82	2.02	134	358	501	

180 CHARACTER DATA RECORD 100K 7010

CW LNG	MRG ORD	NO. CF	PROCESS TIME			TAPE TIME				MAXIMUM NUMBER OF					
			B	G	MILLISECONDS/RECORD	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	33	318	4.55	1.48	1.50	9.67	4.73	3.17	2.27	29	79	111	
		5	33	318	6.84	1.72	1.87	9.67	4.73	3.17	2.27	29	79	111	
		1	33	318	4.55	1.55	1.57	9.67	4.73	3.17	2.27	59	159	222	
	3	5	33	318	6.84	1.94	2.03	9.67	4.73	3.17	2.27	59	159	222	
		1	33	318	4.55	1.59	1.60	9.67	4.73	3.17	2.27	89	238	334	
		5	33	318	6.84	2.08	2.15	9.67	4.73	3.17	2.27	89	238	334	
	4	1	33	318	4.55	1.64	1.65	9.67	4.73	3.17	2.27	119	318	445	
		5	33	318	6.84	2.20	2.26	9.67	4.73	3.17	2.27	119	318	445	
	10	2	1	33	318	4.67	1.49	1.53	9.67	4.73	3.17	2.27	29	79	111
			5	33	318	6.94	1.73	1.89	9.67	4.73	3.17	2.27	29	79	111
			1	33	318	4.67	1.58	1.60	9.67	4.73	3.17	2.27	59	159	222
		3	5	33	318	6.94	1.95	2.06	9.67	4.73	3.17	2.27	59	159	222
			1	33	318	4.67	1.62	1.64	9.67	4.73	3.17	2.27	89	238	334
			5	33	318	6.94	2.10	2.18	9.67	4.73	3.17	2.27	89	238	334
		4	1	33	318	4.67	1.68	1.69	9.67	4.73	3.17	2.27	119	318	445
5			33	318	6.94	2.23	2.29	9.67	4.73	3.17	2.27	119	318	445	
20		2	1	33	318	4.91	1.52	1.57	9.67	4.73	3.17	2.27	29	79	111
			5	33	318	7.15	1.75	1.92	9.67	4.73	3.17	2.27	29	79	111
			1	33	318	4.91	1.63	1.66	9.67	4.73	3.17	2.27	59	159	222
		3	5	33	318	7.15	1.99	2.10	9.67	4.73	3.17	2.27	59	159	222
			1	33	318	4.91	1.69	1.71	9.67	4.73	3.17	2.27	89	238	334
			5	33	318	7.15	2.15	2.23	9.67	4.73	3.17	2.27	89	238	334
		4	1	33	318	4.91	1.75	1.77	9.67	4.73	3.17	2.27	119	318	445
	5		33	318	7.15	2.28	2.35	9.67	4.73	3.17	2.27	119	318	445	
	40	2	1	33	318	5.38	1.58	1.67	9.67	4.73	3.17	2.27	29	79	111
			5	33	318	7.55	1.80	1.99	9.67	4.73	3.17	2.27	29	79	111
			1	33	318	5.38	1.73	1.78	9.67	4.73	3.17	2.27	59	159	222
		3	5	33	318	7.55	2.07	2.19	9.67	4.73	3.17	2.27	59	159	222
			1	33	318	5.38	1.81	1.85	9.67	4.73	3.17	2.27	89	238	334
			5	33	318	7.55	2.24	2.33	9.67	4.73	3.17	2.27	89	238	334
		4	1	33	318	5.38	1.90	1.93	9.67	4.73	3.17	2.27	119	318	445
5			33	318	7.55	2.39	2.46	9.67	4.73	3.17	2.27	119	318	445	



200 CHARACTER DATA RECORD 100K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	30	286	4.70	1.61	1.63	10.74	5.25	3.52	2.52	26	71	100	
		5	30	286	6.95	1.85	2.00	10.74	5.25	3.52	2.52	26	71	100	
	3	1	30	286	4.70	1.68	1.69	10.74	5.25	3.52	2.52	53	143	200	
		5	30	286	6.95	2.06	2.16	10.74	5.25	3.52	2.52	53	143	200	
	4	1	30	286	4.70	1.72	1.73	10.74	5.25	3.52	2.52	80	215	301	
		5	30	286	6.95	2.21	2.28	10.74	5.25	3.52	2.52	80	215	301	
	5	1	30	286	4.70	1.77	1.77	10.74	5.25	3.52	2.52	107	286	401	
		5	30	286	6.95	2.33	2.39	10.74	5.25	3.52	2.52	107	286	401	
	10	2	1	30	286	4.81	1.62	1.66	10.74	5.25	3.52	2.52	26	71	100
			5	30	286	7.05	1.86	2.01	10.74	5.25	3.52	2.52	26	71	100
3		1	30	286	4.81	1.71	1.73	10.74	5.25	3.52	2.52	53	143	200	
		5	30	286	7.05	2.08	2.18	10.74	5.25	3.52	2.52	53	143	200	
4		1	30	286	4.81	1.75	1.77	10.74	5.25	3.52	2.52	80	215	301	
		5	30	286	7.05	2.23	2.31	10.74	5.25	3.52	2.52	80	215	301	
5		1	30	286	4.81	1.80	1.81	10.74	5.25	3.52	2.52	107	286	401	
		5	30	286	7.05	2.36	2.42	10.74	5.25	3.52	2.52	107	286	401	
20		2	1	30	286	5.04	1.65	1.70	10.74	5.25	3.52	2.52	26	71	100
			5	30	286	7.25	1.88	2.05	10.74	5.25	3.52	2.52	26	71	100
	3	1	30	286	5.04	1.76	1.79	10.74	5.25	3.52	2.52	53	143	200	
		5	30	286	7.25	2.12	2.23	10.74	5.25	3.52	2.52	53	143	200	
	4	1	30	286	5.04	1.81	1.84	10.74	5.25	3.52	2.52	80	215	301	
		5	30	286	7.25	2.28	2.36	10.74	5.25	3.52	2.52	80	215	301	
	5	1	30	286	5.04	1.88	1.89	10.74	5.25	3.52	2.52	107	286	401	
		5	30	286	7.25	2.41	2.47	10.74	5.25	3.52	2.52	107	286	401	
	40	2	1	30	286	5.51	1.71	1.79	10.74	5.25	3.52	2.52	26	71	100
			5	30	286	7.65	1.93	2.12	10.74	5.25	3.52	2.52	26	71	100
3		1	30	286	5.51	1.86	1.91	10.74	5.25	3.52	2.52	53	143	200	
		5	30	286	7.65	2.19	2.32	10.74	5.25	3.52	2.52	53	143	200	
4		1	30	286	5.51	1.94	1.97	10.74	5.25	3.52	2.52	80	215	301	
		5	30	286	7.65	2.37	2.46	10.74	5.25	3.52	2.52	80	215	301	
5		1	30	286	5.51	2.02	2.05	10.74	5.25	3.52	2.52	107	286	401	
		5	30	286	7.65	2.52	2.59	10.74	5.25	3.52	2.52	107	286	401	

220 CHARACTER DATA RECORD 100K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	27	262	4.85	1.74	1.76	11.82	5.78	3.87	2.77	24	65	91	
		5	27	262	7.07	1.98	2.13	11.82	5.78	3.87	2.77	24	65	91	
	3	1	27	262	4.85	1.81	1.83	11.82	5.78	3.87	2.77	48	130	182	
		5	27	262	7.07	2.20	2.29	11.82	5.78	3.87	2.77	48	130	182	
	4	1	27	262	4.85	1.85	1.86	11.82	5.78	3.87	2.77	73	195	273	
		5	27	262	7.07	2.34	2.41	11.82	5.78	3.87	2.77	73	195	273	
	5	1	27	262	4.85	1.90	1.90	11.82	5.78	3.87	2.77	97	260	364	
		5	27	262	7.07	2.46	2.52	11.82	5.78	3.87	2.77	97	260	364	
	10	2	1	27	262	4.97	1.75	1.79	11.82	5.78	3.87	2.77	24	65	91
			5	27	262	7.17	1.99	2.15	11.82	5.78	3.87	2.77	24	65	91
3		1	27	262	4.97	1.84	1.86	11.82	5.78	3.87	2.77	48	130	182	
		5	27	262	7.17	2.21	2.31	11.82	5.78	3.87	2.77	48	130	182	
4		1	27	262	4.97	1.88	1.90	11.82	5.78	3.87	2.77	73	195	273	
		5	27	262	7.17	2.36	2.44	11.82	5.78	3.87	2.77	73	195	273	
5		1	27	262	4.97	1.94	1.94	11.82	5.78	3.87	2.77	97	260	364	
		5	27	262	7.17	2.49	2.55	11.82	5.78	3.87	2.77	97	260	364	
20		2	1	27	262	5.20	1.78	1.83	11.82	5.78	3.87	2.77	24	65	91
			5	27	262	7.37	2.01	2.18	11.82	5.78	3.87	2.77	24	65	91
	3	1	27	262	5.20	1.89	1.92	11.82	5.78	3.87	2.77	48	130	182	
		5	27	262	7.37	2.25	2.36	11.82	5.78	3.87	2.77	48	130	182	
	4	1	27	262	5.20	1.95	1.97	11.82	5.78	3.87	2.77	73	195	273	
		5	27	262	7.37	2.41	2.49	11.82	5.78	3.87	2.77	73	195	273	
	5	1	27	262	5.20	2.01	2.02	11.82	5.78	3.87	2.77	97	260	364	
		5	27	262	7.37	2.54	2.61	11.82	5.78	3.87	2.77	97	260	364	
	40	2	1	27	262	5.65	1.84	1.92	11.82	5.78	3.87	2.77	24	65	91
			5	27	262	7.76	2.06	2.25	11.82	5.78	3.87	2.77	24	65	91
3		1	27	262	5.65	1.99	2.04	11.82	5.78	3.87	2.77	48	130	182	
		5	27	262	7.76	2.32	2.45	11.82	5.78	3.87	2.77	48	130	182	
4		1	27	262	5.65	2.07	2.11	11.82	5.78	3.87	2.77	73	195	273	
		5	27	262	7.76	2.50	2.59	11.82	5.78	3.87	2.77	73	195	273	
5		1	27	262	5.65	2.16	2.18	11.82	5.78	3.87	2.77	97	260	364	
		5	27	262	7.76	2.65	2.72	11.82	5.78	3.87	2.77	97	260	364	

240 CHARACTER DATA RECORD 100K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	25	240	5.01	1.86	1.89	12.89	6.30	4.22	3.02	22	59	83	
		5	25	240	7.19	2.11	2.26	12.89	6.30	4.22	3.02	22	59	83	
	3	1	25	240	5.01	1.94	1.95	12.89	6.30	4.22	3.02	44	119	167	
		5	25	240	7.19	2.32	2.42	12.89	6.30	4.22	3.02	44	119	167	
	4	1	25	240	5.01	1.98	1.99	12.89	6.30	4.22	3.02	67	179	250	
		5	25	240	7.19	2.47	2.54	12.89	6.30	4.22	3.02	67	179	250	
	5	1	25	240	5.01	2.03	2.03	12.89	6.30	4.22	3.02	89	239	334	
		5	25	240	7.19	2.59	2.64	12.89	6.30	4.22	3.02	89	239	334	
	10	2	1	25	240	5.12	1.88	1.91	12.89	6.30	4.22	3.02	22	59	83
			5	25	240	7.29	2.12	2.27	12.89	6.30	4.22	3.02	22	59	83
3		1	25	240	5.12	1.96	1.98	12.89	6.30	4.22	3.02	44	119	167	
		5	25	240	7.29	2.34	2.44	12.89	6.30	4.22	3.02	44	119	167	
4		1	25	240	5.12	2.01	2.02	12.89	6.30	4.22	3.02	67	179	250	
		5	25	240	7.29	2.49	2.56	12.89	6.30	4.22	3.02	67	179	250	
5		1	25	240	5.12	2.06	2.07	12.89	6.30	4.22	3.02	89	239	334	
		5	25	240	7.29	2.62	2.67	12.89	6.30	4.22	3.02	89	239	334	
20		2	1	25	240	5.34	1.91	1.96	12.89	6.30	4.22	3.02	22	59	83
			5	25	240	7.49	2.14	2.31	12.89	6.30	4.22	3.02	22	59	83
	3	1	25	240	5.34	2.02	2.05	12.89	6.30	4.22	3.02	44	119	167	
		5	25	240	7.49	2.38	2.49	12.89	6.30	4.22	3.02	44	119	167	
	4	1	25	240	5.34	2.07	2.09	12.89	6.30	4.22	3.02	67	179	250	
		5	25	240	7.49	2.54	2.62	12.89	6.30	4.22	3.02	67	179	250	
	5	1	25	240	5.34	2.14	2.15	12.89	6.30	4.22	3.02	89	239	334	
		5	25	240	7.49	2.67	2.73	12.89	6.30	4.22	3.02	89	239	334	
	40	2	1	25	240	5.79	1.97	2.05	12.89	6.30	4.22	3.02	22	59	83
			5	25	240	7.88	2.19	2.38	12.89	6.30	4.22	3.02	22	59	83
3		1	25	240	5.79	2.12	2.17	12.89	6.30	4.22	3.02	44	119	167	
		5	25	240	7.88	2.45	2.58	12.89	6.30	4.22	3.02	44	119	167	
4		1	25	240	5.79	2.20	2.23	12.89	6.30	4.22	3.02	67	179	250	
		5	25	240	7.88	2.63	2.72	12.89	6.30	4.22	3.02	67	179	250	
5		1	25	240	5.79	2.28	2.31	12.89	6.30	4.22	3.02	89	239	334	
		5	25	240	7.88	2.78	2.85	12.89	6.30	4.22	3.02	89	239	334	

260 CHARACTER DATA RECORD 100K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	23	222	5.16	2.00	2.02	13.96	6.82	4.57	3.27	20	55	77	
		5	23	222	7.32	2.24	2.39	13.96	6.82	4.57	3.27	20	55	77	
	3	1	23	222	5.16	2.07	2.08	13.96	6.82	4.57	3.27	41	110	154	
		5	23	222	7.32	2.45	2.55	13.96	6.82	4.57	3.27	41	110	154	
	4	1	23	222	5.16	2.11	2.12	13.96	6.82	4.57	3.27	62	165	231	
		5	23	222	7.32	2.60	2.67	13.96	6.82	4.57	3.27	62	165	231	
	5	1	23	222	5.16	2.16	2.16	13.96	6.82	4.57	3.27	82	220	308	
		5	23	222	7.32	2.72	2.77	13.96	6.82	4.57	3.27	82	220	308	
	10	2	1	23	222	5.28	2.01	2.04	13.96	6.82	4.57	3.27	20	55	77
			5	23	222	7.42	2.25	2.40	13.96	6.82	4.57	3.27	20	55	77
3		1	23	222	5.28	2.09	2.11	13.96	6.82	4.57	3.27	41	110	154	
		5	23	222	7.42	2.47	2.57	13.96	6.82	4.57	3.27	41	110	154	
4		1	23	222	5.28	2.14	2.15	13.96	6.82	4.57	3.27	62	165	231	
		5	23	222	7.42	2.62	2.69	13.96	6.82	4.57	3.27	62	165	231	
5		1	23	222	5.28	2.19	2.20	13.96	6.82	4.57	3.27	82	220	308	
		5	23	222	7.42	2.75	2.80	13.96	6.82	4.57	3.27	82	220	308	
20		2	1	23	222	5.50	2.04	2.09	13.96	6.82	4.57	3.27	20	55	77
			5	23	222	7.61	2.27	2.44	13.96	6.82	4.57	3.27	20	55	77
	3	1	23	222	5.50	2.15	2.18	13.96	6.82	4.57	3.27	41	110	154	
		5	23	222	7.61	2.51	2.62	13.96	6.82	4.57	3.27	41	110	154	
	4	1	23	222	5.50	2.20	2.22	13.96	6.82	4.57	3.27	62	165	231	
		5	23	222	7.61	2.67	2.75	13.96	6.82	4.57	3.27	62	165	231	
	5	1	23	222	5.50	2.27	2.28	13.96	6.82	4.57	3.27	82	220	308	
		5	23	222	7.61	2.80	2.86	13.96	6.82	4.57	3.27	82	220	308	
	40	2	1	23	222	5.94	2.10	2.18	13.96	6.82	4.57	3.27	20	55	77
			5	23	222	8.00	2.32	2.51	13.96	6.82	4.57	3.27	20	55	77
3		1	23	222	5.94	2.25	2.30	13.96	6.82	4.57	3.27	41	110	154	
		5	23	222	8.00	2.58	2.70	13.96	6.82	4.57	3.27	41	110	154	
4		1	23	222	5.94	2.33	2.36	13.96	6.82	4.57	3.27	62	165	231	
		5	23	222	8.00	2.76	2.85	13.96	6.82	4.57	3.27	62	165	231	
5		1	23	222	5.94	2.41	2.44	13.96	6.82	4.57	3.27	82	220	308	
		5	23	222	8.00	2.91	2.98	13.96	6.82	4.57	3.27	82	220	308	

280 CHARACTER DATA RECORD 100K 7U10

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	21	208	5.33	2.13	2.15	15.06	7.36	4.93	3.53	19	51	71
		5	21	208	7.47	2.37	2.52	15.06	7.36	4.93	3.53	19	51	71
	3	1	21	208	5.33	2.20	2.21	15.06	7.36	4.93	3.53	38	102	143
		5	21	208	7.47	2.59	2.68	15.06	7.36	4.93	3.53	38	102	143
	4	1	21	208	5.33	2.25	2.25	15.06	7.36	4.93	3.53	57	153	214
		5	21	208	7.47	2.73	2.80	15.06	7.36	4.93	3.53	57	153	214
5	1	21	208	5.33	2.29	2.29	15.06	7.36	4.93	3.53	76	204	286	
	5	21	208	7.47	2.85	2.91	15.06	7.36	4.93	3.53	76	204	286	
10	2	1	21	208	5.44	2.14	2.18	15.06	7.36	4.93	3.53	19	51	71
		5	21	208	7.56	2.38	2.53	15.06	7.36	4.93	3.53	19	51	71
	3	1	21	208	5.44	2.23	2.25	15.06	7.36	4.93	3.53	38	102	143
		5	21	208	7.56	2.61	2.70	15.06	7.36	4.93	3.53	38	102	143
	4	1	21	208	5.44	2.28	2.29	15.06	7.36	4.93	3.53	57	153	214
		5	21	208	7.56	2.76	2.83	15.06	7.36	4.93	3.53	57	153	214
5	1	21	208	5.44	2.33	2.33	15.06	7.36	4.93	3.53	76	204	286	
	5	21	208	7.56	2.88	2.94	15.06	7.36	4.93	3.53	76	204	286	
20	2	1	21	208	5.66	2.17	2.22	15.06	7.36	4.93	3.53	19	51	71
		5	21	208	7.75	2.41	2.57	15.06	7.36	4.93	3.53	19	51	71
	3	1	21	208	5.66	2.28	2.31	15.06	7.36	4.93	3.53	38	102	143
		5	21	208	7.75	2.64	2.75	15.06	7.36	4.93	3.53	38	102	143
	4	1	21	208	5.66	2.34	2.36	15.06	7.36	4.93	3.53	57	153	214
		5	21	208	7.75	2.80	2.88	15.06	7.36	4.93	3.53	57	153	214
5	1	21	208	5.66	2.40	2.41	15.06	7.36	4.93	3.53	76	204	286	
	5	21	208	7.75	2.94	2.99	15.06	7.36	4.93	3.53	76	204	286	
40	2	1	21	208	6.10	2.24	2.31	15.06	7.36	4.93	3.53	19	51	71
		5	21	208	8.13	2.45	2.64	15.06	7.36	4.93	3.53	19	51	71
	3	1	21	208	6.10	2.38	2.43	15.06	7.36	4.93	3.53	38	102	143
		5	21	208	8.13	2.72	2.84	15.06	7.36	4.93	3.53	38	102	143
	4	1	21	208	6.10	2.46	2.49	15.06	7.36	4.93	3.53	57	153	214
		5	21	208	8.13	2.89	2.98	15.06	7.36	4.93	3.53	57	153	214
5	1	21	208	6.10	2.55	2.57	15.06	7.36	4.93	3.53	76	204	286	
	5	21	208	8.13	3.04	3.11	15.06	7.36	4.93	3.53	76	204	286	

300 CHARACTER DATA RECORD 100K 7U10

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
5	2	1	20	194	5.49	2.25	2.28	16.11	7.87	5.28	3.78	17	47	66
		5	20	194	7.60	2.50	2.64	16.11	7.87	5.28	3.78	17	47	66
	3	1	20	194	5.49	2.33	2.34	16.11	7.87	5.28	3.78	35	95	133
		5	20	194	7.60	2.71	2.81	16.11	7.87	5.28	3.78	35	95	133
	4	1	20	194	5.49	2.37	2.38	16.11	7.87	5.28	3.78	53	143	200
		5	20	194	7.60	2.86	2.92	16.11	7.87	5.28	3.78	53	143	200
5	1	20	194	5.49	2.42	2.42	16.11	7.87	5.28	3.78	71	191	267	
	5	20	194	7.60	2.98	3.03	16.11	7.87	5.28	3.78	71	191	267	
10	2	1	20	194	5.60	2.27	2.30	16.11	7.87	5.28	3.78	17	47	66
		5	20	194	7.70	2.51	2.66	16.11	7.87	5.28	3.78	17	47	66
	3	1	20	194	5.60	2.35	2.37	16.11	7.87	5.28	3.78	35	95	133
		5	20	194	7.70	2.73	2.83	16.11	7.87	5.28	3.78	35	95	133
	4	1	20	194	5.60	2.40	2.41	16.11	7.87	5.28	3.78	53	143	200
		5	20	194	7.70	2.88	2.95	16.11	7.87	5.28	3.78	53	143	200
5	1	20	194	5.60	2.45	2.46	16.11	7.87	5.28	3.78	71	191	267	
	5	20	194	7.70	3.01	3.06	16.11	7.87	5.28	3.78	71	191	267	
20	2	1	20	194	5.81	2.30	2.35	16.11	7.87	5.28	3.78	17	47	66
		5	20	194	7.88	2.53	2.69	16.11	7.87	5.28	3.78	17	47	66
	3	1	20	194	5.81	2.41	2.43	16.11	7.87	5.28	3.78	35	95	133
		5	20	194	7.88	2.77	2.87	16.11	7.87	5.28	3.78	35	95	133
	4	1	20	194	5.81	2.46	2.48	16.11	7.87	5.28	3.78	53	143	200
		5	20	194	7.88	2.93	3.00	16.11	7.87	5.28	3.78	53	143	200
5	1	20	194	5.81	2.53	2.54	16.11	7.87	5.28	3.78	71	191	267	
	5	20	194	7.88	3.06	3.12	16.11	7.87	5.28	3.78	71	191	267	
40	2	1	20	194	6.25	2.36	2.44	16.11	7.87	5.28	3.78	17	47	66
		5	20	194	8.26	2.58	2.76	16.11	7.87	5.28	3.78	17	47	66
	3	1	20	194	6.25	2.51	2.56	16.11	7.87	5.28	3.78	35	95	133
		5	20	194	8.26	2.84	2.96	16.11	7.87	5.28	3.78	35	95	133
	4	1	20	194	6.25	2.59	2.62	16.11	7.87	5.28	3.78	53	143	200
		5	20	194	8.26	3.02	3.11	16.11	7.87	5.28	3.78	53	143	200
5	1	20	194	6.25	2.67	2.70	16.11	7.87	5.28	3.78	71	191	267	
	5	20	194	8.26	3.17	3.24	16.11	7.87	5.28	3.78	71	191	267	

400 CHARACTER DATA RECORD 100K 7010

CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS					
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	15	146	6.32	2.90	2.92	21.48	10.50	7.04	5.04	13	35	50	
		5	15	146	8.33	3.15	3.29	21.48	10.50	7.04	5.04	13	35	50	
	3	1	15	146	6.32	2.98	2.98	21.48	10.50	7.04	5.04	26	71	100	
		5	15	146	8.33	3.36	3.45	21.48	10.50	7.04	5.04	26	71	100	
	4	1	15	146	6.32	3.02	3.02	21.48	10.50	7.04	5.04	40	107	150	
		5	15	146	8.33	3.51	3.57	21.48	10.50	7.04	5.04	40	107	150	
	5	1	15	146	6.32	3.06	3.06	21.48	10.50	7.04	5.04	53	143	200	
		5	15	146	8.33	3.63	3.68	21.48	10.50	7.04	5.04	53	143	200	
	10	2	1	15	146	6.42	2.92	2.95	21.48	10.50	7.04	5.04	13	35	50
			5	15	146	8.42	3.16	3.30	21.48	10.50	7.04	5.04	13	35	50
3		1	15	146	6.42	3.00	3.02	21.48	10.50	7.04	5.04	26	71	100	
		5	15	146	8.42	3.38	3.47	21.48	10.50	7.04	5.04	26	71	100	
4		1	15	146	6.42	3.05	3.06	21.48	10.50	7.04	5.04	40	107	150	
		5	15	146	8.42	3.53	3.60	21.48	10.50	7.04	5.04	40	107	150	
5		1	15	146	6.42	3.10	3.10	21.48	10.50	7.04	5.04	53	143	200	
		5	15	146	8.42	3.66	3.71	21.48	10.50	7.04	5.04	53	143	200	
20		2	1	15	146	6.63	2.95	2.99	21.48	10.50	7.04	5.04	13	35	50
			5	15	146	8.60	3.18	3.34	21.48	10.50	7.04	5.04	13	35	50
	3	1	15	146	6.63	3.05	3.08	21.48	10.50	7.04	5.04	26	71	100	
		5	15	146	8.60	3.42	3.52	21.48	10.50	7.04	5.04	26	71	100	
	4	1	15	146	6.63	3.11	3.13	21.48	10.50	7.04	5.04	40	107	150	
		5	15	146	8.60	3.57	3.65	21.48	10.50	7.04	5.04	40	107	150	
	5	1	15	146	6.63	3.17	3.18	21.48	10.50	7.04	5.04	53	143	200	
		5	15	146	8.60	3.71	3.76	21.48	10.50	7.04	5.04	53	143	200	
	40	2	1	15	146	7.05	3.01	3.08	21.48	10.50	7.04	5.04	13	35	50
			5	15	146	8.96	3.23	3.41	21.48	10.50	7.04	5.04	13	35	50
3		1	15	146	7.05	3.16	3.20	21.48	10.50	7.04	5.04	26	71	100	
		5	15	146	8.96	3.49	3.61	21.48	10.50	7.04	5.04	26	71	100	
4		1	15	146	7.05	3.23	3.26	21.48	10.50	7.04	5.04	40	107	150	
		5	15	146	8.96	3.67	3.75	21.48	10.50	7.04	5.04	40	107	150	
5		1	15	146	7.05	3.32	3.34	21.48	10.50	7.04	5.04	53	143	200	
		5	15	146	8.96	3.82	3.88	21.48	10.50	7.04	5.04	53	143	200	

500 CHARACTER DATA RECORD 100K 7010

CW LNG	MRG ORD	NO. CF	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS					
			B	G	PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	12	118	7.18	3.55	3.57	26.85	13.12	8.80	6.30	10	28	40	
		5	12	118	9.12	3.79	3.93	26.85	13.12	8.80	6.30	10	28	40	
	3	1	12	118	7.18	3.62	3.63	26.85	13.12	8.80	6.30	21	57	80	
		5	12	118	9.12	4.01	4.10	26.85	13.12	8.80	6.30	21	57	80	
	4	1	12	118	7.18	3.67	3.67	26.85	13.12	8.80	6.30	32	86	120	
		5	12	118	9.12	4.15	4.21	26.85	13.12	8.80	6.30	32	86	120	
	5	1	12	118	7.18	3.71	3.71	26.85	13.12	8.80	6.30	43	114	160	
		5	12	118	9.12	4.28	4.32	26.85	13.12	8.80	6.30	43	114	160	
	10	2	1	12	118	7.28	3.57	3.59	26.85	13.12	8.80	6.30	10	28	40
			5	12	118	9.21	3.81	3.95	26.85	13.12	8.80	6.30	10	28	40
3		1	12	118	7.28	3.65	3.66	26.85	13.12	8.80	6.30	21	57	80	
		5	12	118	9.21	4.03	4.12	26.85	13.12	8.80	6.30	21	57	80	
4		1	12	118	7.28	3.70	3.70	26.85	13.12	8.80	6.30	32	86	120	
		5	12	118	9.21	4.18	4.24	26.85	13.12	8.80	6.30	32	86	120	
5		1	12	118	7.28	3.75	3.75	26.85	13.12	8.80	6.30	43	114	160	
		5	12	118	9.21	4.30	4.35	26.85	13.12	8.80	6.30	43	114	160	
20		2	1	12	118	7.48	3.60	3.64	26.85	13.12	8.80	6.30	10	28	40
			5	12	118	9.38	3.83	3.98	26.85	13.12	8.80	6.30	10	28	40
	3	1	12	118	7.48	3.70	3.72	26.85	13.12	8.80	6.30	21	57	80	
		5	12	118	9.38	4.06	4.16	26.85	13.12	8.80	6.30	21	57	80	
	4	1	12	118	7.48	3.76	3.77	26.85	13.12	8.80	6.30	32	86	120	
		5	12	118	9.38	4.22	4.29	26.85	13.12	8.80	6.30	32	86	120	
	5	1	12	118	7.48	3.82	3.83	26.85	13.12	8.80	6.30	43	114	160	
		5	12	118	9.38	4.36	4.41	26.85	13.12	8.80	6.30	43	114	160	
	40	2	1	12	118	7.88	3.66	3.73	26.85	13.12	8.80	6.30	10	28	40
			5	12	118	9.72	3.87	4.05	26.85	13.12	8.80	6.30	10	28	40
3		1	12	118	7.88	3.81	3.85	26.85	13.12	8.80	6.30	21	57	80	
		5	12	118	9.72	4.14	4.25	26.85	13.12	8.80	6.30	21	57	80	
4		1	12	118	7.88	3.88	3.91	26.85	13.12	8.80	6.30	32	86	120	
		5	12	118	9.72	4.32	4.40	26.85	13.12	8.80	6.30	32	86	120	
5		1	12	118	7.88	3.97	3.99	26.85	13.12	8.80	6.30	43	114	160	
		5	12	118	9.72	4.47	4.53	26.85	13.12	8.80	6.30	43	114	160	

750 CHARACTER DATA REGRD 100K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	8	78	9.39	5.17	5.18	40.28	19.69	13.20	9.45	7	19	26	
		5	8	78	11.18	5.42	5.54	40.28	19.69	13.20	9.45	7	19	26	
		1	8	78	9.39	5.25	5.24	40.28	19.69	13.20	9.45	14	38	53	
	4	1	8	78	11.18	5.63	5.71	40.28	19.69	13.20	9.45	14	38	53	
		5	8	78	9.39	5.29	5.28	40.28	19.69	13.20	9.45	21	57	80	
		1	8	78	11.18	5.78	5.83	40.28	19.69	13.20	9.45	21	57	80	
	5	1	8	78	9.39	5.33	5.32	40.28	19.69	13.20	9.45	28	76	107	
		5	8	78	11.18	5.90	5.93	40.28	19.69	13.20	9.45	28	76	107	
		1	8	78	9.48	5.19	5.20	40.28	19.69	13.20	9.45	7	19	26	
	10	2	5	8	78	11.26	5.43	5.56	40.28	19.69	13.20	9.45	7	19	26
			1	8	78	9.48	5.27	5.27	40.28	19.69	13.20	9.45	14	38	53
			5	8	78	11.26	5.65	5.73	40.28	19.69	13.20	9.45	14	38	53
		4	1	8	78	9.48	5.32	5.31	40.28	19.69	13.20	9.45	21	57	80
			5	8	78	11.26	5.80	5.85	40.28	19.69	13.20	9.45	21	57	80
			1	8	78	9.48	5.37	5.36	40.28	19.69	13.20	9.45	28	76	107
5		5	8	78	11.26	5.92	5.96	40.28	19.69	13.20	9.45	28	76	107	
		1	8	78	9.67	5.22	5.25	40.28	19.69	13.20	9.45	7	19	26	
		5	8	78	11.42	5.45	5.60	40.28	19.69	13.20	9.45	7	19	26	
20		3	1	8	78	9.67	5.32	5.33	40.28	19.69	13.20	9.45	14	38	53
			5	8	78	11.42	5.69	5.77	40.28	19.69	13.20	9.45	14	38	53
			1	8	78	9.67	5.38	5.38	40.28	19.69	13.20	9.45	21	57	80
		4	5	8	78	11.42	5.84	5.90	40.28	19.69	13.20	9.45	21	57	80
			1	8	78	9.67	5.44	5.44	40.28	19.69	13.20	9.45	28	76	107
			5	8	78	11.42	5.98	6.02	40.28	19.69	13.20	9.45	28	76	107
	40	2	1	8	78	10.04	5.28	5.34	40.28	19.69	13.20	9.45	7	19	26
			5	8	78	11.74	5.50	5.66	40.28	19.69	13.20	9.45	7	19	26
			1	8	78	10.04	5.43	5.46	40.28	19.69	13.20	9.45	14	38	53
		3	5	8	78	11.74	5.76	5.86	40.28	19.69	13.20	9.45	14	38	53
			1	8	78	10.04	5.50	5.52	40.28	19.69	13.20	9.45	21	57	80
			5	8	78	11.74	5.94	6.01	40.28	19.69	13.20	9.45	21	57	80
		4	1	8	78	10.04	5.59	5.60	40.28	19.69	13.20	9.45	28	76	107
			5	8	78	11.74	6.09	6.14	40.28	19.69	13.20	9.45	28	76	107
			1	8	78	10.04	5.59	5.60	40.28	19.69	13.20	9.45	28	76	107

1000 CHARACTER DATA RECORD 100K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS			
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI	
5	2	1	6	58	11.64	6.79	6.79	53.71	26.25	17.60	12.60	5	14	20	
		5	6	58	13.33	7.04	7.16	53.71	26.25	17.60	12.60	5	14	20	
		1	6	58	11.64	6.87	6.85	53.71	26.25	17.60	12.60	10	28	40	
	4	1	6	58	13.33	7.25	7.32	53.71	26.25	17.60	12.60	10	28	40	
		5	6	58	11.64	6.91	6.89	53.71	26.25	17.60	12.60	16	43	60	
		1	6	58	13.33	7.40	7.44	53.71	26.25	17.60	12.60	16	43	60	
	5	1	6	58	11.64	6.95	6.93	53.71	26.25	17.60	12.60	21	57	80	
		5	6	58	13.33	7.52	7.55	53.71	26.25	17.60	12.60	21	57	80	
		1	6	58	11.73	6.81	6.81	53.71	26.25	17.60	12.60	5	14	20	
	10	2	5	6	58	13.40	7.05	7.17	53.71	26.25	17.60	12.60	5	14	20
			1	6	58	11.73	6.89	6.88	53.71	26.25	17.60	12.60	10	28	40
			5	6	58	13.40	7.27	7.34	53.71	26.25	17.60	12.60	10	28	40
		4	1	6	58	11.73	6.94	6.93	53.71	26.25	17.60	12.60	16	43	60
			5	6	58	13.40	7.42	7.46	53.71	26.25	17.60	12.60	16	43	60
			1	6	58	11.73	6.99	6.97	53.71	26.25	17.60	12.60	21	57	80
5		5	6	58	13.40	7.55	7.57	53.71	26.25	17.60	12.60	21	57	80	
		1	6	58	11.90	6.84	6.86	53.71	26.25	17.60	12.60	5	14	20	
		5	6	58	13.55	7.07	7.21	53.71	26.25	17.60	12.60	5	14	20	
20		3	1	6	58	11.90	6.94	6.95	53.71	26.25	17.60	12.60	10	28	40
			5	6	58	13.55	7.31	7.39	53.71	26.25	17.60	12.60	10	28	40
			1	6	58	11.90	7.00	6.99	53.71	26.25	17.60	12.60	16	43	60
		4	5	6	58	13.55	7.47	7.52	53.71	26.25	17.60	12.60	16	43	60
			1	6	58	11.90	7.07	7.05	53.71	26.25	17.60	12.60	21	57	80
			5	6	58	13.55	7.60	7.63	53.71	26.25	17.60	12.60	21	57	80
	40	2	1	6	58	12.25	6.90	6.95	53.71	26.25	17.60	12.60	5	14	20
			5	6	58	13.85	7.12	7.28	53.71	26.25	17.60	12.60	5	14	20
			1	6	58	12.25	7.05	7.07	53.71	26.25	17.60	12.60	10	28	40
		3	5	6	58	13.85	7.38	7.48	53.71	26.25	17.60	12.60	10	28	40
			1	6	58	12.25	7.13	7.13	53.71	26.25	17.60	12.60	16	43	60
			5	6	58	13.85	7.56	7.62	53.71	26.25	17.60	12.60	16	43	60
		4	1	6	58	12.25	7.21	7.21	53.71	26.25	17.60	12.60	21	57	80
			5	6	58	13.85	7.71	7.75	53.71	26.25	17.60	12.60	21	57	80
			1	6	58	12.25	7.21	7.21	53.71	26.25	17.60	12.60	21	57	80

1500 CHARACTER DATA RECORD 100K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
					5	2	1	4	38	16.22	10.04	10.02	80.57	39.38
		5	4	38	17.75	10.28	10.38	80.57	39.38	26.41	18.91	3	9	13
	3	1	4	38	16.22	10.11	10.08	80.57	39.38	26.41	18.91	7	19	26
		5	4	38	17.75	10.49	10.54	80.57	39.38	26.41	18.91	7	19	26
	4	1	4	38	16.22	10.15	10.11	80.57	39.38	26.41	18.91	10	28	40
		5	4	38	17.75	10.64	10.66	80.57	39.38	26.41	18.91	10	28	40
	5	1	4	38	16.22	10.20	10.16	80.57	39.38	26.41	18.91	14	38	53
		5	4	38	17.75	10.76	10.77	80.57	39.38	26.41	18.91	14	38	53
10	2	1	4	38	16.30	10.05	10.04	80.57	39.38	26.41	18.91	3	9	13
		5	4	38	17.82	10.29	10.40	80.57	39.38	26.41	18.91	3	9	13
	3	1	4	38	16.30	10.13	10.11	80.57	39.38	26.41	18.91	7	19	26
		5	4	38	17.82	10.51	10.57	80.57	39.38	26.41	18.91	7	19	26
	4	1	4	38	16.30	10.18	10.15	80.57	39.38	26.41	18.91	10	28	40
		5	4	38	17.82	10.66	10.69	80.57	39.38	26.41	18.91	10	28	40
	5	1	4	38	16.30	10.23	10.20	80.57	39.38	26.41	18.91	14	38	53
		5	4	38	17.82	10.79	10.80	80.57	39.38	26.41	18.91	14	38	53
20	2	1	4	38	16.46	10.08	10.08	80.57	39.38	26.41	18.91	3	9	13
		5	4	38	17.96	10.31	10.43	80.57	39.38	26.41	18.91	3	9	13
	3	1	4	38	16.46	10.19	10.17	80.57	39.38	26.41	18.91	7	19	26
		5	4	38	17.96	10.55	10.61	80.57	39.38	26.41	18.91	7	19	26
	4	1	4	38	16.46	10.24	10.22	80.57	39.38	26.41	18.91	10	28	40
		5	4	38	17.96	10.71	10.74	80.57	39.38	26.41	18.91	10	28	40
	5	1	4	38	16.46	10.31	10.28	80.57	39.38	26.41	18.91	14	38	53
		5	4	38	17.96	10.84	10.86	80.57	39.38	26.41	18.91	14	38	53
40	2	1	4	38	16.78	10.14	10.18	80.57	39.38	26.41	18.91	3	9	13
		5	4	38	18.23	10.36	10.50	80.57	39.38	26.41	18.91	3	9	13
	3	1	4	38	16.78	10.29	10.29	80.57	39.38	26.41	18.91	7	19	26
		5	4	38	18.23	10.62	10.70	80.57	39.38	26.41	18.91	7	19	26
	4	1	4	38	16.78	10.37	10.36	80.57	39.38	26.41	18.91	10	28	40
		5	4	38	18.23	10.80	10.84	80.57	39.38	26.41	18.91	10	28	40
	5	1	4	38	16.78	10.45	10.44	80.57	39.38	26.41	18.91	14	38	53
		5	4	38	18.23	10.95	10.97	80.57	39.38	26.41	18.91	14	38	53

2000 CHARACTER DATA RECORD 100K 7010

CW LNG	MRG ORD	NO. CF	B	G	PROCESS TIME MILLISECONDS/RECORD			TAPE TIME MILLISECONDS/RECORD				MAXIMUM NUMBER OF RECORDS IN THOUSANDS		
					PH1	PH2	PH3	7330	729 II	729 IV	729 VI	200 CPI	556 CPI	800 CPI
					5	2	1	3	28	20.84	13.28	13.24	107.43	52.51
		5	3	28	22.27	13.52	13.60	107.43	52.51	35.21	25.21	2	7	10
	3	1	3	28	20.84	13.35	13.30	107.43	52.51	35.21	25.21	5	14	20
		5	3	28	22.27	13.74	13.77	107.43	52.51	35.21	25.21	5	14	20
	4	1	3	28	20.84	13.39	13.34	107.43	52.51	35.21	25.21	8	21	30
		5	3	28	22.27	13.88	13.89	107.43	52.51	35.21	25.21	8	21	30
	5	1	3	28	20.84	13.44	13.38	107.43	52.51	35.21	25.21	10	28	40
		5	3	28	22.27	14.00	13.99	107.43	52.51	35.21	25.21	10	28	40
10	2	1	3	28	20.92	13.29	13.26	107.43	52.51	35.21	25.21	2	7	10
		5	3	28	22.33	13.53	13.62	107.43	52.51	35.21	25.21	2	7	10
	3	1	3	28	20.92	13.38	13.33	107.43	52.51	35.21	25.21	5	14	20
		5	3	28	22.33	13.75	13.79	107.43	52.51	35.21	25.21	5	14	20
	4	1	3	28	20.92	13.43	13.37	107.43	52.51	35.21	25.21	8	21	30
		5	3	28	22.33	13.90	13.91	107.43	52.51	35.21	25.21	8	21	30
	5	1	3	28	20.92	13.48	13.42	107.43	52.51	35.21	25.21	10	28	40
		5	3	28	22.33	14.03	14.02	107.43	52.51	35.21	25.21	10	28	40
20	2	1	3	28	21.07	13.32	13.31	107.43	52.51	35.21	25.21	2	7	10
		5	3	28	22.46	13.56	13.66	107.43	52.51	35.21	25.21	2	7	10
	3	1	3	28	21.07	13.43	13.39	107.43	52.51	35.21	25.21	5	14	20
		5	3	28	22.46	13.79	13.83	107.43	52.51	35.21	25.21	5	14	20
	4	1	3	28	21.07	13.49	13.44	107.43	52.51	35.21	25.21	8	21	30
		5	3	28	22.46	13.95	13.96	107.43	52.51	35.21	25.21	8	21	30
	5	1	3	28	21.07	13.55	13.50	107.43	52.51	35.21	25.21	10	28	40
		5	3	28	22.46	14.08	14.08	107.43	52.51	35.21	25.21	10	28	40
40	2	1	3	28	21.37	13.39	13.40	107.43	52.51	35.21	25.21	2	7	10
		5	3	28	22.72	13.60	13.73	107.43	52.51	35.21	25.21	2	7	10
	3	1	3	28	21.37	13.53	13.52	107.43	52.51	35.21	25.21	5	14	20
		5	3	28	22.72	13.87	13.92	107.43	52.51	35.21	25.21	5	14	20
	4	1	3	28	21.37	13.61	13.58	107.43	52.51	35.21	25.21	8	21	30
		5	3	28	22.72	14.04	14.07	107.43	52.51	35.21	25.21	8	21	30
	5	1	3	28	21.37	13.70	13.66	107.43	52.51	35.21	25.21	10	28	40
		5	3	28	22.72	14.19	14.20	107.43	52.51	35.21	25.21	10	28	40

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**IBM****Technical Newsletter**

File Number 1410/7010-33  
Re: Form No. C28-0354-2  
This Newsletter No. N27-1271  
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## IBM 1410/7010 GENERALIZED TAPE SORTING PROGRAM

This Technical Newsletter amends the publication IBM 1410/7010 Operating System; Generalized Tape Sorting Program, Form C28-0354-2, to make changes concerning the Sort Common area, SIU input, linkage symbols, and other necessary changes and additions.

The attached replacement pages (7-8, 17-20, 27-28, 47-52) should be substituted for the corresponding pages now in the publication. Text changes are indicated by a vertical line to the left of the affected text; figure and table changes are indicated by a bullet (•) to the left of the affected figure/table caption.

Please file this cover letter at the back of the publication. It provides a method of determining if all changes have been received and incorporated into the publication.

## Features of the Generalized Tape Sorting Program

To facilitate program scheduling within the Operating System, the Generalized Tape Sorting Program permits input from tape unit(s) on either channel or from the Standard Input Unit (SIU). The program will use any merge tape units specified by the user. Output of the sort program will be on one of the two merge files (see "Glossary") specified. The output file address will be placed in the IPI field (see the *System Monitor* publication) in the Resident Monitor for use as input by a subsequent program.

Data records may be unblocked or blocked fixed-length records, or unblocked or blocked variable-length records.

The blocking used during intermediate passes by the sort program is independent of the blocking of the input file, the blocking of the output file, and the number of records internally sorted at one time.

The control data word upon which the sort or merge program is based can consist of as many as ten control data fields. Maximum length of each such field is 999 characters. The control data fields can be contiguous or scattered throughout the record, but must not overlap.

In each phase a limited amount of core storage can be occupied by user-written subroutines.

Linkage points are provided at logical junctures in the program to facilitate the performance of non-sorting functions, such as the alteration, addition, deletion, summarization, expansion, or contraction of data records, and the activation of IOCS label and error exits for the user's special processing routines.

The merge order in the sort program can be from two to five in a balanced merge, or from one to five in an unbalanced merge; the desired merge order is communicated to the sort program via control cards. The merge order for the merge program can be from one to eight.

The program will sort in either ascending or descending standard BCD Interchange Code collating sequence, as specified in the control information supplied by the user.

The option of having checkpoints taken can be specified through the control information. These checkpoints are taken by means of the Resident IOCS checkpoint routine. Restart procedures are provided by the System Monitor.

## Equipment Requirements

### Basic Machine Requirements

The Generalized Tape Sorting Program requires either an IBM 1410 with 40,000, 60,000 or 80,000 positions of core storage and the Processing Overlap and Priority special features; or an IBM 7010 with 40,000, 60,000, 80,000 or 100,000 positions of core storage. One data transmission channel will satisfy the minimum requirements of the program. However, the program attains optimum efficiency when two data transmission channels are used; it will automatically take advantage of the overlap of reading and writing with processing made possible by having two channels.

### Tape Unit Requirements

The required and optional tape units used by the program are shown in Figure 2. IBM 7330, 729 II, 729 IV, 729 V, and/or 729 VI Magnetic Tape Units can be used.

The four units (three if an unbalanced merge is used) required for the merging tapes, plus the unit required for the System Operating File, can be the five tape units (four if an unbalanced merge is used) specified as the minimum required for the

Function	Number of Units Required
Program Tape Unit (MJB)	One (Not required if the program is stored on the System Operating file, or on disk storage in a disk-oriented system.)
Merging Tape Units (for sort program only)	m tape units for each of two merge files, where m is the merge order employed in Phase 2 (a minimum of four tape units). If an unbalanced merge is used, m tape units for one merge file and m' tape units for the other merge file (a minimum of three tape units). The program will operate if all the tape units are on one channel. All the units for one merge file need not be on the same channel.
Sort Program Input Tape Unit(s)	One, for one reel of input; one or more, for two or more reels of input, on either channel. Merging tape units may be used. No input tape units are required if the input is from the SIU.
Merge Program Input Tape Unit(s)	One for each merge program input file (multiple units may be used for each file).
Sort Program Output Tape Unit(s)	None (merging tape units will be used for output from the sort program).
Merge Program Output Tape Unit(s)	One (multiple units may be used).

Figure 2. Tape Unit Requirements

Operating System. Any other tape units required during the operation of the program must be in addition to these. In a disk-oriented system, the four tape units (three if an unbalanced merge is used) required for the merging tapes must be in addition to the basic system requirements. A description of the Operating System machine requirements can be found in the publication *System Generation*.

### Input Specifications

Input data may be unblocked or blocked fixed-length records, or unblocked or blocked variable-length records. The input file may be on any specified tape units or the sru.

#### Input Data-Record Formats

A detailed description of the required formats for input data records appears in the publication *Basic Input/Output Control System*. For the Generalized Tape Sorting Program, unblocked variable-length data records, with or without a Block Character-Count field, may also have Record Character-Counts specified. Form 3 fixed-length records must be handled by defining them to the sort or merge program as Form 1 records (the record length specified will include the four-position Block Character-Count field).

The program will accept data records containing any valid 1410/7010 characters, with the following restrictions:

1. A record mark can appear only as the last character of a record.
2. Group marks with word marks must never appear in a record, and group marks or word separator characters must not appear in the high-order position of any control data field.

The minimum permissible tape record length is 13 characters. The maximum permissible tape record length is 9,989 characters. If the sort program is run under control of the Tele-processing Supervisor, it is recommended that the maximum tape-record length be less than 3,000 characters. The user may specify on the SORTTYPE control card (see the "Program Operation" section) the maximum sort blocking or sort block length of tape records to be used during the Phase 2 merge passes of the sort program. The minimum permissible data-record length for variable-length records is 13 characters. The maximum permissible data-record length depends on available core storage in each of the three phases. The estimates of maximum data-record lengths shown in Figure 3 are based on the following assumptions:

1. No space has been reserved in any phase for added programming.

Merge Order	Maximum Data-Record Length (In Characters) Per Core-Storage Size			
	40,000 Positions of Core Storage	60,000 Positions of Core Storage	80,000 Positions of Core Storage	100,000 Positions of Core Storage
2	4,800	8,800	9,989	9,989
3	4,400	8,400	9,989	9,989
4	3,600	7,000	9,989	9,989
5	3,100	6,000	8,800	9,989
6*	2,800	5,300	7,800	9,989
7*	2,500	4,700	7,000	9,200
8*	2,300	4,300	6,300	8,300

\* Merge program only

Figure 3. Maximum Sort Data-Record Length

2. Only single input areas are being used by the program.
3. The size of the Resident Monitor is 11,500 positions.
4. Single control data fields are specified.

#### Parity and Mode

Input data records can be read in even or odd parity, and can be read in Move or Load mode. Within the sort program, records are processed in the Load mode.

If input data records are read in the Load mode, there must be a word mark in the high-order position of each control data field specified; no other positions in a control data field can have word marks. The absence of a word mark in the high-order position of a control data field, or its presence in any other position of the field, can result in undetected sequencing errors.

If input data records are variable length and are read in the Load mode, there must be a word mark in the high-order position of the Block Character-Count field and the Record Character-Count field, if these fields are part of the record.

#### Sort Capacity

The maximum capacity of the sort program is one full reel of records at sort blocking less than the merge order ( $m-1$ , where  $m$  represents the merge order). In an unbalanced merge,  $m$  represents the larger of the two merge orders. While it may be possible to sort up to  $m$  full reels, successful completion of such a program cannot be assured. In an unbalanced merge, when the smaller of the merge orders is one, the maximum capacity is one full reel at sort blocking.

#### Output Specifications

Output records must conform to the same form, content and length specifications as input records. The sort program output file will be on one or more of the merge work tapes. For a merge program, the user specifies the symbolic unit on which the output file is to be written.

CARD TYPE	DESCRIPTION
<b>SORTTYPE</b>	This card is used to provide general information about the file to be sorted or the files to be merged, and the manner of processing.
<b>INPUTFILE</b>	This card supplies information pertaining to the input file.
<b>OUTPUTFILE</b>	This card supplies information pertaining to the output file.
<b>CNTLFLDS</b>	The control data fields upon which the sort or merge program will operate are indicated on this card.
<b>LABELDES</b>	The tape-label requirements of the input, merge and output files are described on this card. This card type is required <i>only</i> if tape labels are used.

In the following paragraphs, the parameters that can be used for each control card type are described. In each case, the parameter itself (parameter label, hyphen, and parameter value) is given, followed by an indication as to whether the parameter is required, optional, or required only under or for certain conditions. Following this is a description of the structure and use of the parameter.

If the contents of the parameter-value field are variable, an "n" is used to represent each position of the field. When the user is preparing the control cards, he must punch the appropriate value in this field. A capital letter in the parameter-value field is the specific code for that field.

#### **SORTTYPE Parameters**

**RECLen-nnnn** (Required)

The parameter-value field is numeric, with a maximum length of four characters, and specifies the data-record length for fixed-length records, or the maximum data-record length for variable-length records, including the terminal record mark if specified in either case. (If the record length is changed by user modification, the parameter-value field must specify the length of the data records as processed by the program; if input is specified as SIU or 0000, the parameter value field must specify the length of the data record without terminal record marks.) The maximum and minimum values possible are specified in "Features and Specifications," under "Input and Output Specifications."

**MERGEORD-n** (Required)

The single-character parameter-value field is numeric, and specifies the merge order to be employed in a merge or sort using a balanced merge. If the program is a sort using an unbalanced merge, the field specifies the greater of the merge orders to be employed. For a sort, the value may be from two to five. For a merge, the value may be from one to eight.

**UNBALANCED-n** (Optional)

The single-character parameter-value field is numeric and specifies the lesser of the merge orders to be employed in a sort using an unbalanced merge. The value may be from one to four.

**OPTIMB-n** (Optional)

The single-character parameter-value field is alphabetic. This parameter applies to sort programs only. The sort will determine an optimum sort blocking factor (B) and internal sort size (G), based on core availability, merge order, an assumed random sequencing of the input file, the input blocking factor, the output blocking factor, data-record length, etc. If the user desires, he may use this parameter to influence the B and G calculations. The following parameter values can be used:

PARAMETER VALUE	MEANING
Y	Compute B and G, making B as large as possible while not reducing G to an inefficient point. This option might be specified if, for example, the input file is known to have a high degree of sequencing (see "Glossary"). In case a smaller G would not necessarily increase the number of Phase 2 merge passes but would reduce the Phase 1 processing time, the larger B would reduce the tape processing time. The effect would be a possible reduction of over-all sort time.
N	Compute B and G, making G as large as possible while not reducing B to an inefficient value. This option might be used if the input file was known to have some degree of inverse sequencing. The larger G may reduce the number of sequences produced by Phase 1, thereby possibly saving a Phase 2 merge pass.
M	This option instructs the sort to use the sort blocking factor specified by the SORTBLK parameter for fixed-length records, or the maximum sort block length specified by the BLKLEN parameter for variable-length records. If the value specified is found to be too large, the program will take the next largest value that can be used. One situation in which this option might be used would be where the sort was to operate in a system that included Tele-processing equipment; in this case, it might be desired that tape record lengths be limited.

**SORTBLK-nnnn**

(Required only with option "M" of the OPTIMB parameter, with fixed-length records)

The parameter-value field is numeric, with a maximum length of four characters. The user places the desired sort blocking factor in this field.

**BLKLEN-nnnn**

(Required only with option "M" of the OPTIMB parameter, with variable-length records)

The parameter-value field is numeric, with a maximum length of four characters. The user places the maximum sort block length desired in this field. This specified length must include the four-character Block Character-Count field.

**CHKPOINT-Y** (Optional)

This parameter is used to specify that the sort or merge program should activate its linkages to the iocs checkpoint routine. "Y" is the only valid entry.

**DESCEND-D** (Optional)

This parameter is used to specify that the sort or merge program should arrange the output file in descending collating sequence. If the parameter is not provided, the file will be processed in ascending collating sequence. "D" is the only valid entry.

**TAPEDEN-n** (Optional)

The single-character parameter-value field is numeric, and specifies the density of the merge tapes being used. The following parameter values can be used:

PARAMETER VALUE	MEANING
2	200 characters per inch
5	556 characters per inch
8	800 characters per inch

If this parameter is not provided, a density of 556 characters per inch will be assumed.

**UNLOAD-Y** (Optional)

This parameter, used with a sort only, requests that the input and output merge tapes be rewound and unloaded at the completion of each pass in Phase 2. This option is of value in relatively large-volume sorts using 7330 tape drives; it forces high-speed rewinding of the drives at the end of each pass. "Y" is the only valid entry. If this option is not specified, the merge tapes will be rewound but not unloaded (i.e., option RRRR — see "REWIND" under "INPUTFILE Parameters").

**1sIZMOD-nnnnn** (Optional)

The parameter-value field is numeric, with a maximum length of five characters. This parameter is used to specify the total number of positions of core storage that will be reserved for added programming during execution of Phase 1 of a sort program; the actual number should be placed in the parameter-value field. This parameter should be used only if added programming is present during Phase 1.

**2sIZMOD-nnnnn** (Optional)

The parameter-value field is numeric, with a maximum length of five characters. This parameter is used to specify the total number of positions of core storage that will be reserved for added programming during execution of Phase 2 of a sort program; the actual number should be placed in the parameter-value field. This parameter should be used only if added programming is present during Phase 2.

**3sIZMOD-nnnnn** (Optional)

The parameter-value field is numeric, with a maximum length of five characters. This parameter is used to specify the total amount of core storage that will be reserved for added programming during execution of Phase 3 of a sort program; the actual number should be placed in the parameter-value field. This parameter

should be used only if added programming is present during Phase 3.

**ERROPTION-n** (Optional)

The single-character parameter-value field is alphabetic. This parameter allows the user to communicate to the IOCS, through the sort or merge program, the error option desired. The options are those offered by the ERROPTNS DTF entry of the IOCS.

The following parameter values can be used:

PARAMETER VALUE	MEANING
A	This parameter value will cause the IOCS to process all uncorrectable, erroneous records in the file as if they were error free (i.e., release them to the sort or merge program as the IOCS would release a record read into core storage without error).
S	This parameter value will cause the IOCS to read the next tape record into the same input area that contains the uncorrectable erroneous record, thereby destroying that record.

If this parameter is not included, the "A" value will be assumed.

**CNSLMSG-Y** (Optional)

This parameter is used to specify that the sort or merge program should issue console messages for messages 10310, 10321, and 10330, in addition to the information printed out on the SPR. The wording of each console message can be found under "Messages" in the "Program Operation" section.

**INPUTFILE Parameters**

**RECFORM-n** (Required)

The single-character parameter-value field is numeric, and specifies the record format. The parameter values (which generally correspond to IOCS Form definitions), and the nature of the record formats represented, are as follows:

PARAMETER VALUE	NATURE OF RECORD FORMAT
1	Unblocked fixed- or variable-length records that may or may not terminate in a record mark (Form 1 records). This parameter value should also be used for Form 3 fixed-length records.
2	Blocked fixed-length records. Each record <i>must</i> terminate in a record mark (Form 2 records).
3	Identical to Form 1 records, with the exception that the first four positions of every Form 3 record contain a Block Character-Count as specified by IOCS (Form 3 records). A "1" should be used for Form 3 fixed-length records.
4	Blocked variable-length records that contain a terminal record mark and a Record Character-Count, as specified by IOCS (Form 4 records). In addition, the first four positions of each block of Form 4 records contain a Block Character-Count.

INPBLKNG-nnnn (Required only for Form 1, 2 and 3 records)

The parameter-value field is numeric (unless the input is on the SIU), with a maximum length of four characters; it specifies the blocking factor of the input file for fixed-length records, indicates the type of unblocked variable-length records, or indicates that the input is on the SIU. The following parameter values can be used:

PARAMETER VALUE	TYPE OF RECORDS
0000	Unblocked, without terminal record marks (Form 1 or 3)
0001	Unblocked, with terminal record marks (Form 1 or 3)
SIU	The input is in the SIU and is unblocked, without terminal record marks (Form 1). (The parameters LENMODREC and RECFORM will be disregarded; the corresponding fields in Sort Common for these parameters and the INPBLKNG parameter will be set to conform to this type record.)

NOTE: When using SIU input, and the records are less than 80 characters, each record must terminate with a record mark that can be punched in the cards or added at modifying point P11.

(Number of Blocked, with terminal record marks (Form 2) Data Records)

This parameter is not used for Form 4 records.

BLKLEN-nnnn (Required only for Form 4 records)

The parameter-value field is numeric, with a maximum length of four characters. This parameter is required to specify the maximum input block length for Form 4 records only. The maximum input block length possible is described under "Input Specifications," in "Features and Specifications." This parameter is not used for Form 1, 2, or 3 records.

CHARCNTSIZ-n (Required only for Form 4 records)

The single-character parameter-value field is numeric, and specifies the number of characters in the Record Character-Count field, if present. This parameter is required for Form 4 data records. Since the sort or merge program can use a Record Character-Count field with Form 1 and 3 variable-length records to improve efficiency in processing wherever possible, this parameter is optional for records of those types. If used with Form 1 and 3 variable-length records, this parameter must be accompanied by the parameter LOCCHARCNT.

LOCCHARCNT-nnnn (Required only for Form 4 records)

The parameter-value field is numeric, with a maximum length of four characters. This parameter specifies the location of the low-order position of the Record Character-Count field (if present) in the record, relative to the beginning of the data record. This parameter is required with Form 4 data records, and is op-

tional with Forms 1 and 3 variable-length records. If this parameter is provided along with the parameter CHARCNTSIZ for Form 1 or Form 3 variable-length records, the program will use the Record Character-Count field to improve efficiency wherever possible.

LENMODREC-nnnn (Optional)

The parameter-value field is numeric, with a maximum length of four characters. This parameter specifies the *input* data-record length for fixed-length records or maximum *input* data-record length for variable-length records, if the length is changed through a Phase 1 modification. It is not required if the input data-record length is not changed. The minimum and maximum values possible are described under "Input Specifications," in "Features and Specifications."

FILESIZE-nnnnnnn (Optional)

The parameter-value field is numeric, with a maximum length of seven characters. This parameter specifies the total number of records (including padding records, if any) in the input file, if this information is known. When this parameter is specified, the general assignment routine will check to see whether or not this number of records will exceed sort capacity (the number of records that can fit on  $m - 1$  tape reels at sort blocking), and the program will check to see if it has received the total number of records.

PARITY-n (Optional)

The single-character parameter-value field is alphabetic, and specifies the parity in which the input file is to be read. If the parameter is omitted, even parity will be assumed. The parameter values that can be used are as follows:

PARAMETER VALUE	MEANING
E	Even parity
O	Odd parity

MODE-n (Optional)

The single-character parameter-value field is alphabetic, and specifies the mode in which the input file is to be read. If the parameter is omitted, Move mode will be assumed. The parameter values that can be used are as follows:

PARAMETER VALUE	MEANING
M	Move mode
L	Load mode

REELCNT-nn (Optional)

The parameter-value field is numeric, and can be one or two characters. This parameter specifies to a sort program the number of reels of tape to be processed in the input file. If "99" is specified, a message is typed instructing the operator to enter the number of

reels of input to the sort program. If the REELCNT parameter is omitted, the sort will process input records until an end-of-file trailer label is recognized, or, with unlabeled files, until the first tape mark is reached. This parameter is valid only with a sort program.

**1REELCNT-nn** (Optional)

The parameter-value field is numeric, and can be one or two characters. This parameter specifies to a merge program the number of reels of tape to be processed in the first input file. If this parameter is omitted and a Y is entered in the sixth position of the MCHCKLBL parameter-value field (see "LABELDES Parameters"), the merge processes input records from this file until the end-of-file trailer label is recognized. If this parameter is omitted and Y is not entered (or if unlabeled tapes are used), the merge processes input records from this file only until the first tape mark is reached.

- 2REELCNT-nn (Optional)    6REELCNT-nn (Optional)
- 3REELCNT-nn (Optional)    7REELCNT-nn (Optional)
- 4REELCNT-nn (Optional)    8REELCNT-nn (Optional)
- 5REELCNT-nn (Optional)

Each of these parameters is identical in function to 1REELCNT-nn for the second through eighth input files, respectively. These parameters are valid only with a merge program. The number of these REELCNT parameters used must be equal to the number of input files.

**REWIND-nnnn** (Optional)

The four-character parameter-value field is alphabetic, and specifies the IOCS rewind options desired for the sort or merge input file(s).

Each of the four parameter-value characters must be one of the following:

PARAMETER VALUE	MEANING
R	Rewind the tape reels
U	Rewind and unload the tape reels
N	Take no action

The character in the first (left-hand) parameter-value field position causes the IOCS to perform the specified action (or no action) on the first reel of each input file, at the beginning of the reel. The character in the second position causes the IOCS to act on all subsequent reels of each file, at the beginning of each reel. The character in the third position causes the IOCS to act on all the reels of the file (except the last reel) when the end of each reel is reached. The character in the fourth position causes the IOCS to act on the last reel of each file when the end of that reel is reached.

If this parameter is included, all four selected characters must appear in the parameter-value field. If

the parameter is omitted, the options RRUU are assumed.

**OUTPUTFILE Parameters**

**OUTBLKNG-nnnn** (Required only for Form 1, 2 and 3 records)

The parameter-value field is numeric, with a maximum length of four characters. It either specifies the blocking factor of the output file for fixed-length records, or indicates the type of unblocked variable-length records. The parameter values that can be used are as follows:

PARAMETER VALUE	MEANING
0000	Unblocked, without terminal record marks (Form 1 or 3)
0001	Unblocked, with terminal record marks (Form 1 or 3)
(Number of Data Records)	Blocked, with terminal record marks (Form 2)

This parameter is not used for Form 4 records.

**BLKLEN-nnnn** (Required for Form 4 records only)

The parameter-value field is numeric, with a maximum length of four characters. This parameter is required to specify the maximum output block length for Form 4 variable-length records only. This length must include four positions for the Block Character-Count field. (Sort sets a plus sign in the low-order position of this Block Character-Count.) Maximum output block length possible is described under "Output Specifications," in "Features and Specifications." This parameter is not used for Form 1, 2, or 3 records.

**LENMODREC-nnnn** (Optional)

The parameter-value field is numeric, with a maximum length of four characters. This parameter specifies the *output* data-record length for fixed-length records or maximum *output* data-record length for variable-length records, if the length is changed through a Phase 3 or merge-program modification. It is not required if the output data-record length is not changed. The minimum and maximum values possible are described under "Output Specifications," in "Features and Specifications."

**PADDING-n** (Optional)

The single-character parameter-value field is numeric, and indicates the padding option desired with blocked fixed-length output records. For an ascending sort or merge, a low padding record is one consisting of all blank characters (except the terminal record mark) and a high padding record is one consisting of all nines (except for the terminal record mark). For a



- TTTT high padding records have been added.  
UUUU low padding records have been added.  
VVVV high padding records have been dropped.  
WWWW low padding records have been dropped.  
XXXXXXXX records have been written on the output file.  
YYYY high padding records are included in the output.  
ZZZZ low padding records are included in the output.  
The console message will be issued only if the user has specified the CNSLMSG-Y parameter in the SORTTYPE control card; otherwise, no message will be written on the console.  
*Action:* None required.
- 10331 *Console:* 10331- OUTPUT CU  
*SPR:* None  
*Explanation:* "C" is the channel and "U" the unit of the first output reel.  
*Action:* None required.
- 10332 *Console:* 10332 - LAST OUTPUT UNIT CU  
*SPR:* None  
*Explanation:* "C" is the channel, and "U" is the unit of the last output reel.  
*Action:* None required.
- 20301 *Console:* 20301- . . . (Field) . . . (Assumed Value) . . .  
*SPR:* 20301- SORT (MERGE) CONTROL INFORMATION CHANGED IF RUN GOES . . . (specific error) . . .  
*Explanation:* The control card diagnostic routine has detected an error or inconsistency in the control data supplied by the user as indicated in the SPR message. If the option to continue the sort or merge is taken, the field indicated in the console message will be altered to the assumed value shown in the console message.  
*Action:* Press INQUIRY REQUEST, then type:  
\$31 - to accept the assumed value and continue execution.  
\$32 - to reject the assumed value and cause the sort or merge to terminate as with a "cannot proceed" condition.  
Press INQUIRY RELEASE. The typing of any other units digit will not break the waiting loop.
- 20302 *Console:* 20302- N GREATER THAN NMAX  
*SPR:* 20302- N GREATER THAN NMAX  
*Explanation:* The file size specified by the user is greater than the estimated maximum. If execution is continued, successful completion of the sort may be reached but cannot be guaranteed.  
*Action:* Press INQUIRY REQUEST, then type:  
\$31 - to continue with the sort.  
\$32 - to cause the sort to terminate as with a "cannot proceed" condition.  
Press INQUIRY RELEASE. The typing of any other units digit will not break the waiting loop.
- 20303 *Console:* 20303- REELCNT  
*SPR:* None  
*Explanation:* Control card information (REELCNT-99) indicated that the exact number of input reels are to be specified during execution of the sort program. The operator must now enter the number of reels to be sorted.  
*Action:* Press INQUIRY REQUEST, then type:  
\$31nn - where nn is the number of input reels to be sorted.  
Press INQUIRY RELEASE.
- 20311 *Console:* 20311- XXXXXXXX.YYYYYYY  
*SPR:* 20311- XXXXXXXX IN YYYYYYY OUT.  
RECORD COUNT OFF  
*Explanation:* In reconciling the Phase 1 record count (YYYYYYY) against the file size specified by the user (XXXXXXXX), the counts were found to be unequal. This may be due to an incorrect file size being specified, operational failure, or the skipping of unreadable tape records when the SKIP option has been specified to the IOCS.  
*Action:* Press INQUIRY REQUEST, then type:  
\$31 - to accept the new record count (YYYYYYY) and continue processing.  
\$32 - to cause the sort to terminate as with a "cannot proceed" condition.  
Press INQUIRY RELEASE. The typing of any other units digit will not break the waiting loop.
- 20321 *Console:* 20321- XXXXXXXX.YYYYYYY  
*SPR:* 20321- XXXXXXXX IN YYYYYYY OUT.  
RECORD COUNT OFF  
*Explanation:* In reconciling the record count at the end of a Phase 2 pass, the output count (YYYYYYY) was found to be unequal to the input count (XXXXXXXX). This may be due to operational failure or the skipping of unreadable tape records when the SKIP option has been specified to the IOCS.  
*Action:* Press INQUIRY REQUEST, then type:  
\$31 - to accept the new record count (YYYYYYY) and continue processing.  
\$32 - to cause the sort to terminate as with a "cannot proceed" condition.  
Press INQUIRY RELEASE. The typing of any other units digit will not break the waiting loop.
- 20331 *Console:* 20331- XXXXXXXX.YYYYYYY  
*SPR:* 20331- XXXXXXXX IN YYYYYYY OUT.  
RECORD CNT OFF  
*Explanation:* In reconciling the record count at the end of Phase 3 or a merge program, the output count (YYYYYYY) was found to be unequal to the input count (XXXXXXXX). This may be due to an incorrect input file size being specified for the merge, operational failure, or the skipping of unreadable tape records when the SKIP option has been specified to the IOCS.  
*Action:* Press INQUIRY REQUEST, then type:  
\$31 - to accept the new record count and continue processing.  
\$32 - to cause the sort or merge to terminate as with a "cannot proceed" condition.  
Press INQUIRY RELEASE. The typing of any other units digit will not break the waiting loop.
- 30301 *Console:* 30301- . . . (Columns 16-20 of the card) . . .  
*SPR:* 30301- NOT SORT CONTROL CARD . . . (card in question) . . .  
*Explanation:* A card, read by the control card reading routine, does not contain the identification SORTb in columns 16-20.  
*Action:* Press INQUIRY REQUEST, then type:  
\$31 - to accept the card in question, and attempt to process it.  
\$32 - to reject the card and cause the sort or merge to terminate as with a "cannot proceed" condition.  
\$33 - to bypass the card and attempt to continue execution of the program.  
Press INQUIRY RELEASE. The typing of any other units digit will not break the waiting loop.

## Program Description

The following information on the Sort Definition program and the phases of the sort or merge programs created is provided to give the user a more detailed picture of the structure of these programs. This information is also necessary if user-written modification routines are to be included.

### The Sort Definition Program

The Sort Definition program selects, from the set of modules provided, those modules necessary to produce the sort or merge program specified by the Sort Definition (DSORT) control card. It also prepares the Linkage Loader load cards that specify the symbolic units to be used by the sort or merge program, and indicate the type of program defined. The Monitor, upon reading an EXEQ (execute) card specifying the Sort Definition program, will load and execute the program.

Input to the Sort Definition program consists of the Sort Definition control cards and user routines to be added. The operational procedures are as follows:

1. The program reads the first card and scans it for its parameters.
2. The parameters, upon being identified, cause the setting or resetting of indicators in the program. These are preset to signify a fixed-length sort program with multiple control fields and without modifications (these parameters will be assumed if no parameters to the contrary are entered).
3. A table lookup is performed against the indicator set to find a key for the list of all necessary PHASE, BASE and CALLN statements to be included for the defined sort or merge program. (If user routines are to be included, a check is made before the writing of each statement on symbolic unit MW2 to see if the added routines should be included at that point. If they should, the cards on the SIV for the added routines are copied onto MW2.)
4. When the program completes the definition of a sort or merge program, it looks for the next pair of control cards on the SIV. If none is found, control is returned to the Monitor.

The Sort Definition program consists of the single module IBRTDEFIN.

### Phases of the Sort or Merge Programs

The sort programs produced, each "built" from several modules, are each divided into four phases. These are known as the *General Assignment Phase*, *Phase 1*, *Phase 2* and *Phase 3*. Merge programs consist of only the General Assignment Phase and Phase 3. Each phase will perform a specific function for the sort or merge program produced.

Figure 16 shows the modules that may be used for each phase in the sort/merge program(s) produced. Certain modules may be included and their alternates excluded, depending on the nature of the program desired and the data to be processed; i. e., the program may be a sort or merge program, the data may be of fixed- or variable-length, and there may be single or multiple control data fields.

#### General Assignment Phase

The General Assignment Phase does the initial house-keeping for the sort or merge program. This phase reserves the Sort Common area used by all phases of the sort. This area, which exists in core storage during the entire program, is then initialized with predetermined constants, and word marks are placed in the proper locations. The user's control cards are read, and the Common is further set up according to this data. Information in Common is checked for both validity and consistency. In a sort program, the last function of the General Assignment Phase is the calculation of B (sort blocking factor) and G (internal sort size) from the information in Common. Purpose of the B and G calculation is to optimize the sort with respect to both core storage and running time.

When these functions have been completed, the next phase is called in; this will be Phase 1 for a sort, or Phase 3 for a merge.

The modules that can be used by the General Assignment Phase are: COMAN, PRIME, CTLCD, GASSR, GASM3, and DUM00.

#### Phase 1

Phase 1 performs the initial sorting of the input file. This phase consists of two parts: the assignment program and the running program. Functions of each of these parts are described below.

LINKAGE SYMBOL	DESCRIPTION
SO65/	Address of an instruction which should be returned to if the user, in a Phase 3 or merge program modification routine at exit P32, lengthens, shortens, or alters a record in the user's work area. This instruction remains in core storage throughout Phase 3 or the merge.
SM62/	The core-storage location containing a word mark switch. The word mark is set by the sequence check in the merge network if the current record coming out of the merge is equal to the preceding record out. The program does not clear the word mark. The user must clear the word mark if the switch is being used. No other bit position in the character should be altered by the user. The one-position field remains in core storage throughout Phase 3 or the merge.
SI01/	Address of an instruction to which the user's routine should branch if an unblocked, variable-length record is to be inserted in the output file during Phase 3 or the merge. This instruction remains in core storage throughout Phase 3 or the merge.
SI02/	B-address of an instruction that sets a group mark with word mark at the end of an unblocked, variable-length record. This instruction remains in core storage throughout Phase 3 or the merge.
SI54/	Address of a seven-digit, unsigned numeric field used for counting the total number of data records processed by the output routine. This counter remains in core storage throughout Phase 3 or the merge.
SI55/	Address of an instruction which the user's routine in Phase 3 or the merge should return to if (1) the routine, located at exit P31, has summarized records or (2) the routine, located at exit point P32, has deleted a record in either the input area or the user's work area. The instruction remains in core storage throughout Phase 3 or the merge.
SIN5/	Address of an instruction to which the user's routine should return after inserting a blocked variable-length record into the output file. Reference may be made to this linkage symbol throughout Phase 3 or the merge.
SOKS/	Address of a four-digit, unsigned numeric field into which the user's routine must place the Record Character-Count of an inserted blocked, variable-length record. If the user is deleting a record, this field will contain the Record Character-Count of the record being deleted. The field remains in core storage throughout Phase 3 or the merge.
SI88/	Address of a five-digit, positively signed numeric field used for Form 4 records to determine whether or not the next record can fit in the output area. This field remains in core storage throughout Phase 3 or the merge.
SO08/	Address of a five-digit, positively signed numeric field that contains the maximum output block length for Form 4 records.
SOPR/	This constant remains in core storage throughout Phase 3 or the merge.
SO07/	Address of the high-order position (carriage-control character) of a 134-position print field which may be used by added programming routines. The last character of the field is a group mark with word mark. The word mark in the high-order position of the field must not be destroyed. Word marks should not appear in any other position in the field. The field remains in core storage throughout the execution of Phase 3 or the merge.
SO10/	Address of the output routine instruction issuing a write tape command. This field remains in core storage throughout Phase 3 or the merge.
	Address of a print routine which will accomplish the printing of the field at SOPR/. The first instruction of the routine is an SBR to the operand of the exit branch. The routine remains in core storage throughout the execution of Phase 3 or the merge.

### Input/Output Modification

Because the sort or merge programs produced provide the user with access to the iocs File Tables and iorw's, he can modify the iocs error, tape-label, service, and end-of-file routines, if desired.

At specific sort or merge program exits, the user may either alter the contents of the input, merge, and output File Tables and iorw's, or may completely replace those provided with ones contained in his added programming. However, only certain fields are completely available to the user; the sort or merge program requires specific values in many of the fields to enable execution.

The full description of the arrangement and contents of the File Tables, File Table Extensions and iorw's is contained in the publication *Basic Input/Output Control System*. The following discussion assumes that the reader has an understanding of the information contained therein.

The sort or merge program uses the File Tables and iorw's in the Sort Common area as a basis for setting up those actually used when the program is executed. By modifying the common fields, the user is effectively modifying related fields used throughout the program. There is one File Table, one iorw and three File Table Extensions in Sort Common. The File Table and iorw are used to set up File Tables for the input, merge and output files in each phase of the program. They are set up, as desired, in the assignment routines and then moved to the working File Table and iorw areas. One tape-label File Table Extension is for the input file, one for the merge files, and one for the output files.

The following assumptions and requirements apply to the File Tables, File Table Extensions, and iorw's, as set up by the program:

1. They are initially set for no labels. This condition may be altered by LABELDES control card entries.
2. They are initially set for Move mode, even parity. This condition may be altered by control card entries.
3. All error conditions will be specified to be checked (except for WLR which is set during the running program to check for wrong-length-records on fixed-length records only).
4. All uncorrectable errors will be accepted. This condition may be altered by control card information to skip uncorrectable errors.
5. The rewind option RRUU is assumed for Phase 1 input and Phase 3 output, and RRRR for all the merge files. This condition may be changed by control card information.
6. The end-of-file address is set to the sort or merge program end-of-file routine. If the address is changed to a user address, the user's routine must save the sort or merge program address for the return to the running program.
7. The File Tables and File Table Extensions are set for Form 1 records and *must not be changed*. Any other entry will prevent proper execution of the program.

The contents of the fields contained in the File Table, File Table Extension and IORW areas are described in the "Sort Common Area" subsection. These descriptions also indicate whether a field may or may not be changed by the user.

#### **Record Length Changes by the Sort or Merge Program**

Under certain conditions, the General Assignment routines will alter Sort Common area fields that stipulate record and block lengths. The user must be aware of these changes if he is including modifications. For a sort program, the pertinent fields that may be changed are 11, 12, 13, 15, 17, 25, 27, 29, 31, 33, 35, 37, 39, 41 and 43. For a merge, the record-length field that may be changed is 13. The contents of the fields will indicate the length of the records or blocks as they appear after adjustment. For a description of the changes that may occur, consult the individual field descriptions in the "Sort Common Area" subsection.

#### **Exit Point Descriptions**

The exit points provided in the program are described in detail in this subsection. For a summary of the exit point locations and suggested uses, see Figure 18 in the "Execution of Added Programming" subsection. Significant conditions governing the use of each exit point are specified in the descriptions. In each case, the description is limited to covering those factors that

are essential to satisfactory program performance. To meet the user's individual requirements, each modification will, of course, include the additional instructions necessary. The programming technique to be used within the framework of the specifications for each exit is left to the discretion of the user.

The format used for the description of each of the exit points is as follows:

*Description:* Describes the location of the exit point.

*Return Linkages:* Describes the possible return points from the exit point.

*Linkage Symbols:* Lists those linkage symbols that may be referenced by the user's routine at the specific exit point.

*Required Index Register Conditions:* Specifies those index registers whose contents must be restored by the added programming, or left undisturbed.

*Comments on Use:* Describes some of the applications that may be performed at the exit point.

#### **General Assignment Phase Exit Points**

##### **EXIT CA1**

*Description:* This exit point provides access to an area in which the user may retain information throughout the execution of the sort or merge program. It is physically located below all the program routines, two positions above Sort Common.

*Return Linkages:* Routines executed in the CA1 area can be entered only from a routine at one of the other exit points or from an IOCS exit. The return from these routines must, therefore, be provided by the routine from which it was entered, or through an SBR instruction.

*Linkage Symbols:* Routines in the CA1 area have access to those linkage symbols which are available at the time the routines are relocated by the Linkage Loader. These include SBS1/, SBS2/, SMGA/, and SMGB/.

*Required Index Register Conditions:* The index register conditions that apply to routines executed in CA1 are determined by when the routines are executed in the program. Routines in CA1 that are branched to from other sort exit points must adhere to the restrictions at those points. If the routines in CA1 are branched to from any other point, all index registers used should be saved and restored.

*Comments on Use:* The primary purpose of CA1 is to provide the user with an area in which he may save constants, counters, and routines to be used

throughout the execution of a sort program. These may include, for example, the user's iocs tape-label, service, and error routines.

#### EXIT GA1

*Description:* This is the first General Assignment Phase exit point for either a sort or merge. It occurs following the initialization of common and prior to reading the sort control cards. Routines at this point are entered once and are executed in line after the preceding instructions.

*Return Linkages:* The normal return is to the next instruction following the routine. If the control card reading routine is to be bypassed, the return can be to the linkage symbol SMGA/. If the user wishes to bypass the routine that checks the Sort Common control information for validity and consistency, and in a sort, calculates B and G, the return can be to linkage symbol SMGB/ or to the user's added routine at exit point GA3.

*Linkage Symbols:* Routines at exit point GA1 may use linkage symbols SBS1/, SBS2/, SMGA/, and SMGB/.

*Required Index Register Conditions:* Routines at this exit point may use index registers 01 through 13 without having to save and restore the contents.

*Comments on Use:* The purpose of this exit point is to enable the user to supply his own control information in Sort Common, eliminating the necessity for reading some or all of the sort control cards. If the user completely sets up Sort Common himself he may bypass the common area checking and B and G calculation routine. This, however, should be done only if the user is familiar with all the functions and properties of the Sort Common area.

#### EXIT GA2

*Description:* If activated, this exit point occurs in the General Assignment Phase of both sort and merge programs. The exit point follows the routine that reads the sort control cards and sets up the control card information in the Sort Common area. It precedes the common area checking and B and G calculation routine. Routines at this point are entered once, and are executed in line after the preceding instructions.

*Return Linkages:* The normal return is to the next instruction following the routine. If the common area checking and B and G calculation routine is to be bypassed, the return can be to the linkage symbol SMGB/ or to the user's added routine at exit point GA3.

*Linkage Symbols:* Routines at exit point GA2 may use linkage symbols SBS1/, SBS2/, SMGA/, and SMGB/.

*Required Index Register Conditions:* Routines at GA2 may use index registers 01 through 13 without having to save and restore the contents.

*Comments on Use:* This exit may be used separately, or in conjunction with exits GA1 and GA3, to set up or modify the contents of Sort Common. Bypassing the common area checking routine should be done with caution.

#### EXIT GA3

*Description:* If activated, this exit point follows the execution of the General Assignment Phase of a sort or merge program, and is followed only by the link to the Resident Monitor to load the next phase. Routines at this point are entered once, and are executed in line after the preceding instructions.

*Return Linkages:* The normal return is to the next instruction following the routine.

*Linkage Symbols:* Routines at exit point GA3 may use linkage symbols SBS1/, SBS2/, SMGA/, and SMGB/.

*Required Index Register Conditions:* Routines at GA3 may use index registers 01 through 13 without having to save and restore the contents.

*Comments on Use:* This exit point is provided to enable the user to perform any final general assignment function prior to entering Phase 1 of the sort or merge program.

### Phase 1 Exit Points

#### EXIT P11

*Description:* If activated, this exit point occurs at the point in the running program when each record is about to be moved from the input area to the Record Storage Area. Routines at this exit point are entered for each input record, and are executed in line after the preceding instructions.

*Return Linkages:* The normal return is to the next sequential instruction. If a record is deleted at this exit, the return should be to SO0T/. If a record is moved to the Record Storage Area by the user, the return should be to SI95/.

*Linkage Symbols:* In addition to the return linkage symbols, the added routine may refer to linkage symbols SBS1/, SBS2/, SOGY/, SOVC/, SIHA/, and SIHB/.

*Required Index Register Conditions:* At the time this exit is entered, the contents of index registers 11, 08, and 12 are as follows: Index register 11 contains the address of the high-order position of the current input record; index register 08 contains the address of the high-order position of the field in the Record Stor-

age Area to which the current input record is to be moved, and index register 12 contains the address of the high-order position of the last record moved to the output area from the Record Storage Area. (Until the record storage area is filled, this will not reference a valid record, and the B and A bits of the hundreds position of index register 08 will be present.) Index registers 08 and 11 may be altered as described under "Comments on Use." Routines at P11 may use index registers 01 through 04 without having to save and restore the contents. The contents of the other index registers must be saved and restored.

NOTE: If the input is specified as Form 1, variable length records with no record character count, index register 11 contains the address of the high-order position of the four-position record character count of the current input record. This record character count is added to the record by the sort program.

*Comments on Use:* To delete input records, the following functions must be performed:

1. Increment the counter at SIHA/ by one.
2. Add the sort record length of the data record being deleted to index register 11 (see Field 11). When SIU input is used, the user must add the actual record length including record mark to index register 11.
3. The return to the sort program must be an unconditional branch to SO0T/.

The exit will be re-entered prior to moving the following record to the Record Storage Area. At least one record must be accepted into the sort.

To insert records into the sort, the following functions must be performed:

1. Increment the counter at SIHB/ by one.
2. Using an MRCWR instruction if the input is in Load mode, or an MRCR instruction if in Move mode, move the record from where it is located to the address "0+X8".
3. The return to the sort program must be an unconditional branch to SI95/.

The exit will be re-entered prior to moving the input record to the Record Storage Area, to enable the insertion of more than one record between records. The user may alter or shorten records in the input area location specified in index register 11, and return via the next sequential instruction. If variable length records are being shortened, the user must adjust the Record Character-Count field before returning to the sort program.

To lengthen records (which requires the use of a work area) or use a work area to shorten or alter records, the following functions must be performed:

1. Using an MRCWR instruction if the input is in Load mode, or an MRCR instruction if the input is in

Move mode, move the record from the address "0+X11" to the work area.

2. If variable length records are being processed, adjust the Record Character-Count of the record being modified.

3. After performing the desired record modification, move the record to the address "0+X8", using the appropriate move operation specified above. If SIU input is specified, the input record must be moved with an MRCM or MRCG instruction. The record will not have a terminal record mark in the input area. A group mark with word mark will stop the move. When the record is moved into the Record Storage Area, a terminal record mark must be placed on the record.

4. Add the input data-record length to index register 11. For input blocking parameter-0000, add the data-record length +1.

5. The return to the sort program must be an unconditional branch to SI95/.

EXIT P12

*Description:* If activated, this exit point occurs immediately after the loading of Phase 1 of a sort and before any assignment routines are executed. It is in core storage only during the assignment portion of Phase 1. Routines at this exit point are entered once, and are executed in line following the preceding instructions.

*Return Linkages:* The return from this exit point should be to the next sequential instruction.

*Linkage Symbols:* Routines at exit point P12 may use linkage symbols SBS1/, SBS2/, SOGY/, and SOVC/.

*Required Index Register Conditions:* Routines at P12 may use index registers 01 through 13 without having to save and restore the contents.

*Comments on Use:* This exit point is provided to facilitate execution of user assignment functions for Phase 1 modifications, prior to the execution of the Phase 1 assignment program.

EXIT P13

*Description:* Exit P13, if activated, is located in the Phase 1 assignment program at a point where the user may alter the File Table of the input file. Routines at this exit point are entered once, and will reside in core storage only during the execution of the assignment program. The routines are executed in line after the preceding instructions.

*Return Linkages:* The return from this exit point should be to the next sequential instruction.

*Linkage Symbols:* This exit point may refer to linkage symbols SBS1/, SBS2/, SOGY/, SOVC/.

*Required Index Register Conditions:* Routines at exit point P13 may use index registers 01 through 13 without having to save and restore the contents.

*Comments on Use:* The user may, at this exit point, modify the File Table, File Table Extension, and IORW in the Sort Common area to conform to the input file configuration required for his application. Following exit P13, the Phase 1 assignment program will move the File Table, File Table Extension, and IORW to their

respective running program areas. Prior to moving them, but after the exit, the assignment routine will perform the following:

1. A B bit will be placed in Sort Common Field 118 for wrong-length-record checking on fixed-length input.
2. The reel-count field will be moved in from its location in Sort Common.
3. Mode and parity will be set as specified in Sort Common.
4. The File Table Extension address in the File Table will be set.
5. The symbolic unit field will be moved in from Sort Common.
6. The File Table address will be set in the `IORW`, and the `IORW` address in the File Table.
7. The input area address will be set in the `IORW`.

#### EXIT P14

*Description:* This exit point, if activated, is located in the Phase 1 assignment program at a point where the user may alter the File Table to be used for the merge files in Phases 1, 2, and 3 of a sort. Routines at this exit point are entered once and reside in core storage only during execution of the assignment routines. The added programming is executed in line after the preceding instructions.

*Return Linkages:* The return from exit point P14 should be to the next sequential instruction.

*Linkage Symbols:* Routines at exit point P14 may use linkage symbols `SBS1`, `SBS2/`, `SOCY/`, and `SOVC/`.

*Required Index Register Conditions:* Routines at exit point P14 may use index registers 01 through 13 without having to save and restore the contents.

*Comments on Use:* The comments on exit point P13, with the exception of item 1, apply to exit point P14 for modifying the File Table, File Table Extension, and `IORW` in the Sort Common area for the merge files in Phase 1, Phase 2, and Phase 3 of a sort.

### Phase 3 and Merge Program Exit Points

#### EXIT P31

*Description:* This exit point, if activated, is positioned to provide the user access to each data record as it comes out of the merge network in Phase 3 or the merge program. In addition, the previous record to come out of the merge network is still available in the output area. Exit P31 resides in core storage throughout execution of Phase 3 or the merge program. Routines at this exit point are entered for each output data record after the first, and are executed in line after the preceding instructions.

*Return Linkages:* If the current record coming out of the merge network is to be summarized with the preceding record in the output area, the return to the merge should be to linkage symbol `SI55/`. If not, the return should be to the next sequential instruction.

*Linkage Symbols:* Routines at exit point P31 may use linkage symbols `SBS1/`, `SBS2/`, `SI55/`, `SO26/`, `SO30/`, `SO65/`, `SM62/`, `SO10/`, and `SOPR/`.

*Required Index Register Conditions:* At the time routines at exit P31 are entered, index register 08 contains the address of the high-order position of the next record in the output sequence. Index register 12 contains the address of the high-order position of the previous data record out of the merge network. In a merge program, all index registers must be saved and restored. In a sort program, index registers 02 and 03 may be used without having to save and restore their contents.

*Comments on Use:* This exit point has been provided to enable data records to be summarized. The user may examine each record (other than the first) as it comes out of the merge network, in its proper final sequence, through the use of index register 08, which contains the address of the high-order position. The preceding record in the output file is also available. (The address of its high-order position is in index register 12.) If the current record is to be summarized with the preceding record and deleted, the following steps should be followed:

1. Increment the counter at `SO30/` by one.
2. Add the data-record length to the address in index register 08 (sort data-record length if the program is a sort, input data-record length if the program is a merge).
3. Branch unconditionally to `SI55/`.

To assist in the summarization of equal records, a word mark switch has been provided at the location `SM62/`. If the control data word of the current record out of the merge is equal to that of the preceding record out, the word mark will have been set by the sequence check in the merge network routine. The word mark, if set, is *not* cleared by the program and the user must provide the coding to clear it after interrogation.

Exit P31 occurs after the sequence check is performed by the program; therefore, the user must be sure that he does not inadvertently alter the sequence of the output file.

#### EXIT P32

*Description:* This exit point, if activated, occurs at the point in Phase 3 or the merge when the record is



about to be moved from the input area to the output area. Routines at this exit point are entered for each input record, and are executed in line after the preceding instructions.

*Return Linkages:* The normal return is to the next sequential instruction. If a record is inserted by routines at this exit, the return should be to `so01/`. If a record is deleted, in either the input or work areas, the return should be to `si55/`. If a user lengthens, shortens, or alters a record in his work area, the return should be to `so65/`. If a record is altered to the input area (i.e., user does not move the record to the output area), the return should be to the next sequential instruction.

*Linkage Symbols:* In addition to the return linkage symbols, the added routines may refer to linkage symbols `sbs1/`, `sbs2/`, `si54/`, `si55/`, `si88/`, `sin5/`, `sio1/`, `sio2/`, `so07/`, `so10/`, `soks/`, `soo8/`, and `sopr/`.

*Required Index Register Conditions:* At the time routines at exit P32 are entered, index register 08 contains the address of the high-order position of the next record in the output sequence. Index register 12 contains the address to which the next output record is to be moved. For a merge, all index registers must be saved and restored. For a sort, the contents of index registers 02 and 03 need not be restored; all the other index registers must be saved and restored.

*Comments on Use:* To *insert* a fixed-length record into the output file, the user's added routine must perform the following functions:

1. Determine whether or not a record should be inserted at the current point in the output file. If a record should be inserted, perform steps 2, 3, 4, and 5. If a record should not be inserted, branch to the next sequential sort program instruction.

2. Use one of the following two methods to move the record being inserted to the output area:

- a. If the input file was read in the Move mode, use an `MRCR` instruction to move the record from the user area to "0+X12" in the output area.

- b. If the input file was read in the Load mode, use an `MRCWR` instruction to move the record from the user area to "0+X12" in the output area.

3. Increment the counter at `so26/` by one.

4. Increment the counter at `si54/` by one.

5. Return to the sort or merge program via an unconditional branch to `so01/`. Use of this return enables the sort program to re-enter the exit prior to moving the current low record to the output area. Thus, more than one record can be inserted at the desired point in the output file.

If the output file consists of unblocked, variable-length records, the user's added routine for *inserting*

a variable-length record must perform the following functions:

1. Determine whether or not a record should be inserted at the current point in the output file. If a record should be inserted, perform steps 2, 3, 4, 5, 6, and 7. If a record should not be inserted, branch to the next sequential sort program instruction.

2. Make an unconditional branch to `sio1/`. The return from this linkage symbol will be to the next sequential added routine instruction after the branch.

3. Use one of the two following methods to move the record being inserted to the output area:

- a. If the input file was read in the Move mode, use an `MRCR` instruction to move the record from the user area to "0+X12" in the output area.

- b. If the input file was read in the Load mode, use an `MRCWR` instruction to move the record from the user area to "0+X12" in the output area.

4. Store the B-address register in `sio2/`.

5. Increment the counter at `so26/` by one.

6. Increment the counter at `si54/` by one.

7. Return to the sort program via an unconditional branch to `sin5/`. Use of this return enables the program to re-enter the exit prior to moving the current low record to the output area. Thus, more than one record can be inserted at the desired point in the output file.

If the output file consists of blocked, variable-length records, the user's routine for *inserting* a variable-length record must perform the following functions:

1. Determine whether or not a record should be inserted at the current point in the output file. If a record should be inserted, perform steps 2, 3, 4, 5, 6, 7, and 8. If a record should not be inserted, branch to the next sequential sort program instruction.

2. Add to `si88/` the Record Character-Count of the record being inserted.

3. Compare `soo8/` with `si88/` and branch high to user-written instructions that must:

- a. Subtract the Record Character-Count (of the record to be inserted) from `si88/`.

- b. Branch unconditionally to `so07/`.

NOTE: The branch high in step 3 indicates that the record to be inserted could not fit in the current output block. After executing the instructions at `so07/`, the sort program re-enters exit P32. At this point the current input record is still available to the user's routine.

4. Using an `MLNA` instruction, move the Record Character-Count of the record being inserted to `soks/`.

5. Use one of the two following methods to move the record being inserted to the output area:

- a. If the input file was read in the Move mode,



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