

August 31, 1978

WANG SYSTEMS

SOFTWARE

INVENTORY

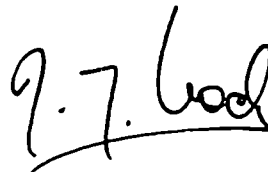
This is the third issue of the Wang Systems Software Inventory. A major effort has been made to improve the logical presentation of the data enclosed, consequently it has been split into functional sections. Additional products will be added to the current sections, or new sections created as they are required. The previous issue, dated February 10, 1978, should now be destroyed.

To order packages, contact Software Sales, Lowell.

To comment on format or to receive more copies, contact Software Distribution, Lowell.

Package Numbers	195-XXXX-Y	Y = 1 Cassette Version 2 Shugart Diskette 4 Hard Disk* 8 Minidiskette
Media Numbers	701-ZXXX	Z = 0 Cassette 2 Shugart Diskette 8 Minidiskette

*Distribution of hard disk packages may be on diskette.



J.G. Cocks

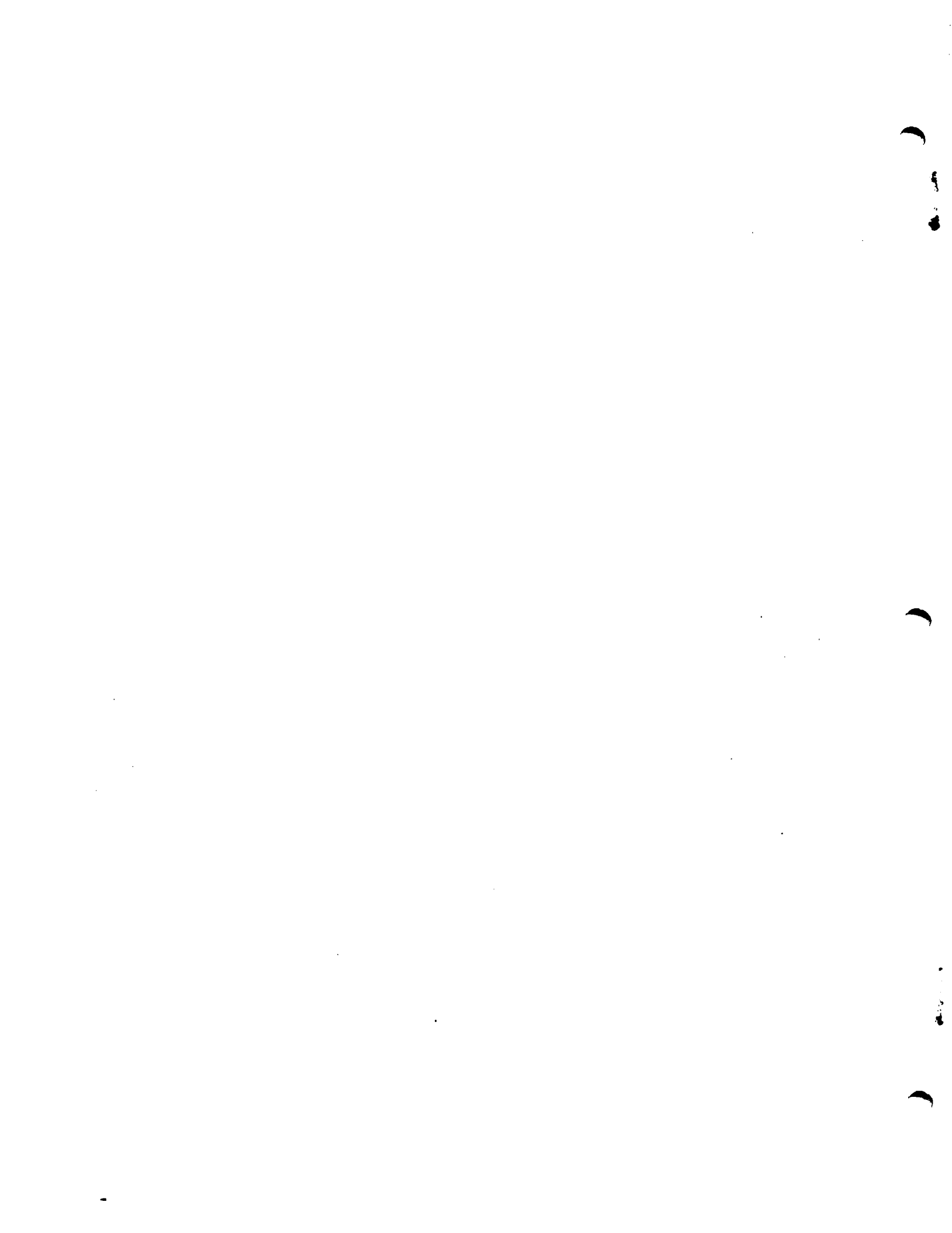
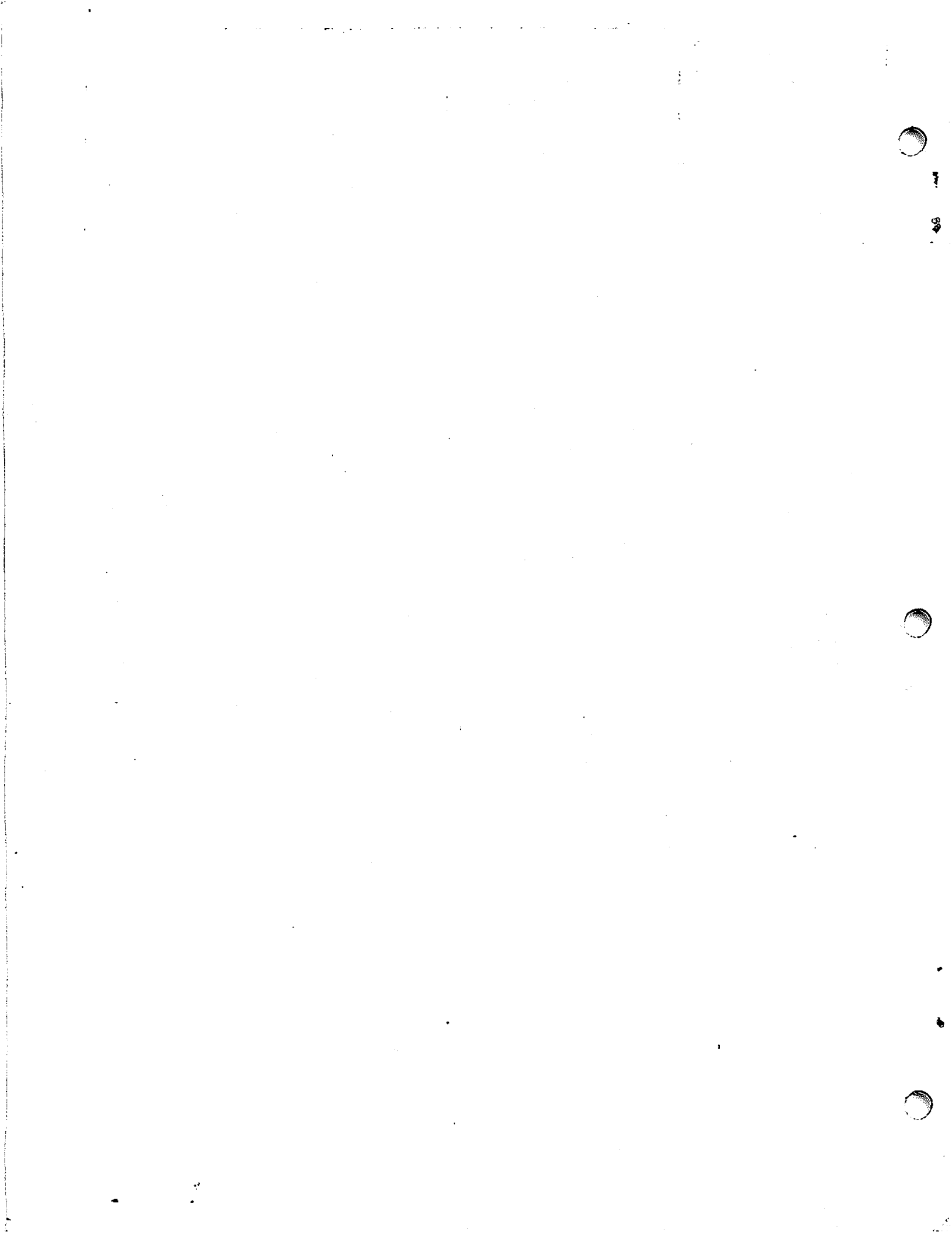


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SECTION 1

GENERAL SYSTEMS UTILITIES

1.1 Integrated Support System (ISS)

This is a comprehensive software utility package, available in several versions, and is designed to provide users of Wang equipment with the necessary software tools to produce applications programs and maintain their systems. There are three versions of ISS available at present:

ISS 2.1 - KFAM 3 (single user) system

Package	195-0004-3
Media	701-2047D/2048D/2049C
Manual	700-3657C

ISS 3.2 - KFAM 5 (multiplexed users) system

Package	195-0037-3/8
Media	701-2238/2239/2240 701-8060/8061/8062/8063/8064/8065/8066
Manual	700-4254A

ISS 3.7 - KFAM 7 (Single CPU, global partition - MVP only) system

Package	195-0050-3
Media	701-2388/2389/2390/2391
Manual	700-4768

1.1.1 ISS Utilities

These utilities are common to all versions of ISS except where noted.

- 1.1.1.1 Copy Verify - copies files (data or program) from one disk platter to another and optionally verifies copied data. All or selected files are copied from a platter according to input parameters.
- 1.1.1.2 Create Reference File - used to create, edit or list a reference file containing a table of file names to be copied, verified, or compared.
- 1.1.1.3 Sort Disk Catalog - prints a list (on screen or printer) of catalog index entries sorted either alphabetically, by starting sector address, or by file sequence in the index. Printing of active files, scratched files, or both may be selected.
- 1.1.1.4 Disk Dump - prints the alphanumeric and hexadecimal contents of either an entire disk file or selected logical records within a file. One of three output formats may be selected.

- 1.1.1.5 Decompress Utility - breaks up multistatement lines of a program so that each statement appears on its own line. Input of all or selected program files on a platter may be specified, including program files within alphabetic limits.
- 1.1.1.6 List/Cross-reference - the List component breaks up all multistatement lines and prints each BASIC statement on a separate line. The Cross-reference component assembles and prints line number, cross-reference, variable cross-reference, DEFFN' cross-reference, and GOSUB cross-reference. Input of all or selected program files on a platter may be specified, including program files within alphabetic limits.
- 1.1.1.7 Compress Utility - reduces amount of memory occupied by the application program, reduces storage requirements and increases program execution speed. The three steps to compression are:
1. Eliminate all REM statements (except first statement line).
 2. Eliminate all space characters (unless enclosed in quotes).
 3. Assign each line number the maximum number of BASIC statements consistent with program operation. Input of all or selected program files on a platter may be specified, including program files within alphabetic limits.
- 1.1.1.8 Reconstruct Index Utility - uses file control sectors established during catalog operations to recover disk files after accidental destruction of a disk catalog index.
- 1.1.1.9 File Status Report - performs several functions tailored to a multiplexed disk environment, including closing one or all files open to a CPU, printing the CPU status of one or all files, and printing all files currently open to a CPU.
- ISS 3.2 and 3.7 only
- 1.1.1.10 Program Compare - compares two program files on a line-by-line basis indicating statements that do not match, if a statement exists in one program but not in another, if one program ends before another, and if they end at the same statement. Input of all or selected program files on a platter may be specified, including program files within alphabetic limits.
- 1.1.1.11 Copy Tape to Disk - copies from 1 to 99 files from cassette onto disk. Up to 99 tape-resident files may be skipped before the first file is copied and additional sectors may be added.
- 1.1.1.12 Format 2260C Disk Utility - allows formatting of a specified model 2260C disk drive platter under software control; as, unlike the 2260B models, the 2260C does not use an external format switch. Since reformatting destroys previous data, an interactive dialogue is held with the operator prior to execution of the format instructions.

ISS 3.7 only

1.1.2 ISS Screen/Disk Subroutines

- 1.1.2.1 Data Entry - accepts keyboard entry and checks that its value, length and number placed before and after the decimal point comply with specified limits. An entry mask or default value may be displayed.
- 1.1.2.2 Position Cursor - moves the cursor to any location on the CRT screen and optionally erases the entire screen or characters to the right of the new cursor position and lines below it. Both 64x16 and 80x24 screens are supported.
- 1.1.2.3 Alphanumeric Input - allows keyboard entry of alphanumeric data with or without prompt messages and checks that the entry does not exceed maximum field size.
- 1.1.2.4 Numeric Input - allows keyboard entry of numeric data indicating field format with or without prompt messages.
- 1.1.2.5 Data Routines - these routines allow entry of data in either Gregorian or Julian form and convert it appropriately.
- 1.1.2.6 Operator Wait - halts program and displays message to key RETURN/EXEC to resume.
- 1.1.2.7 Re-enter - used to signal the operator of an entry error. Displays the word "RE-ENTER" on line 3 of the screen.
- 1.1.2.8 Print Routine - allows a specified character to be printed a specified number of times.

Not ISS 2.1
- 1.1.2.9 Limits Next - returns the names of disk files on a disk in index sector sequence. It also returns the status of the file and whether it is a program or data file.

Not ISS 2.1
- 1.1.2.10 Search Index - searches disk catalog index for a specified file name and returns the status of the file.
- 1.1.2.11 Open/Close Output - opens for output and subsequently closes disk data files which utilize special header and trailer information. Useful for standardization and protection.
- 1.1.2.12 Open/Close Input - opens for input and subsequently closes disk data files which utilize special header and trailer information.
- 1.1.2.13 Free Unused Sectors - examines a selected file in a disk catalog and repositions the end of file to reallocate unused sectors.
- 1.1.2.14 Allocate Data File Space - opens a data file and allocates the available sectors between the current end of cataloged files and the end of the cataloged area.

1.1.2.15 Multiplexed File Open/End/Close Subroutines - provides a controlled file access system using four access modes for data files on a multiplexed disk drive. File password protection is available.

ISS 3.2 only

1.1.2.16 Multistation File Open/End/Close Subroutines - designed for multistation use, with security features using an access table and password. Allows for exclusive (private) access or any one of three nonexclusive (public) modes. Set/Release of Hog mode is also included.

ISS 3.7 only

1.1.3 ISS Translation Table Subroutines

These subroutines initialize arrays which may be used in the translations of:

1. EBCDIC to ASCII
2. ASCII to EBCDIC
3. 2200 to 1200
4. 1200 to 2200

1.1.4 ISS 2.1 SORT

ISS 2.1 only

This is a stand-alone subsystem designed to rapidly sort the records in a disk-based, cataloged data file. Records must have identical formats and the Sort Key can contain up to ten fields (maximum 64 bytes).

1.1.4.1 ISS SORT-4

ISS 3.2 and 3.7 only

SORT-4 is a subsystem for sorting the records in a disk data file. It is loaded from disk by a user-written set-up program which provides the parameters for the sort. When sorting is complete, SORT-4 can load a specific program module, hence it is normally used as a subsystem to an application program. Three types of sorts are available including record sorts, tag sorts, and key sorts. A variety of input record and input file formats are supported.

1.1.5 ISS Key File Access Method (KFAM)

Each version of ISS includes a version of KFAM. Version 2.1 includes KFAM 3 which is used for single-user files.

Version 3.2 includes KFAM 5 specifically designed for multiplexed disk files.

Version 3.7 includes KFAM 7, which allows single-disk access by multiterminal users on the MVP and uses a global partition for memory conservation.

All versions of KFAM permit random access to records in a disk file (using a binary tree structure). KFAM creates and maintains an index of the individual records and their locations in the data file. The index constructed and maintained by KFAM is kept as a cataloged file on a disk. KFAM requires that all data records must be of a fixed length. It supports four record types: The first is a record written with no blocking, meaning each record occupies exactly one sector. The records may be written with or without control bytes; however, the key must be located in the same position within each record. The second type of record is an array type of blocked records where records must be written in array form with control bytes. The key must be located in the same position within each record. It may be part of a field, but may not span fields (thus, it may not include control bytes). The key may not be a numeric field or any part of a numeric field. The block of records may not exceed one sector in length and may not have more than 38 fields per record. The third type of record is contiguous blocked records where all fields of a given record are stored contiguously on the disk. Records may or may not be written with control bytes; however, to use KFAM reorganization, control bytes are mandatory. All records must be the same length and a block of records may not exceed one sector in length. The key must be located in the same position within each record. The fourth type of record is multiple-sector records, where each record occupies more than one sector; however, each record must occupy the same number of sectors. The key must be located in the same position within each record. The key may be located in any sector, but may not span sectors. Records may be written with or without control bytes. Records may be up to 255 sectors in length; however, KFAM reorganization requires that records may not exceed 40 sectors in length and more than 12K of memory is required if record length exceeds 8 sectors.

The key of a KFAM record may be from 1 to 30 bytes of alphanumeric data. The key may not be a numeric field. The first byte of an active key may not contain the value HEX (FF) nor may the key contain a value of all bytes HEX (00).

KFAM-3 only operates within a single-user environment. KFAM-5 is designed for a multiplexed disk environment, allows up to four CPU's to access a KFAM disk file and includes protective procedures designed to prevent destructive intrusions of one CPU into the file operation of another CPU. The user may also change the access mode of a currently-open multiplexed KFAM file. The access modes in KFAM-5 include inquiry, read only, shared, exclusive and non-multiplexed. A record protection feature, applicable to the Shared and Inquiry modes, allows concurrent multiple CPU access to the file being updated. KFAM-5 also has the ability to find the previous record in the user file in logical key sequence. KFAM-5 also supports BA mode-blocked records.

KFAM-7 is especially designed for the 2200MVP CPU. The KFAM-7 subroutines, which can be accessed by all stations, are located in a global partition. Within this centralized global partition, KFAM-7

also maintains file-access information by which it controls multistation access to shared KFAM-7 files. A maximum of 30 KFAM-7 files may be open on a multistation MVP without software modification; a maximum of eight KFAM-7 files may be open per station. The global partition with the entire set of KFAM-7 subroutines, occupies a 9K partition.

1.1.5.1 KFAM Utilities (Included with KFAM)

- 1.1.5.1.1 Initialize KFAM file - catalogs an area on the disk for the User File or Key File or both. It creates the KDR record (the first record of the key file containing vital user-supplied information about the User and Key Files), a null key file and a trailer record.
- 1.1.5.1.2 Key File Creation - creates a Key File for the records in an existing User File requiring only that the operator know the key for the last record in the User File in physical sequence.
- 1.1.5.1.3 KFAM Reorganization - based on an input KFAM file (Key file and User file) constructs a new Output User file in place, containing active records only, written in ascending key sequence. It creates a new Key file based on the new User file. KFAM-5 has a second version allowing stand-alone reorganization.
- 1.1.5.1.4 Reallocate KFAM File Space - is used in conjunction with Disk Copy and Reorganize to lengthen or shorten KFAM Key files and User files.
- 1.1.5.1.5 Disk Copy and Reorganization - this program copies a file from one disk to another. It may be used in conjunction with Reallocate KFAM File Space or it may be used alone to copy any cataloged file (as in 1.1.5.1.4) to another disk. (KFAM-3 only).
- 1.1.5.1.6 Print Key File - prints the current contents of the KDR record and the key index records, for specified Key file. With KFAM-5 and KFAM-7 files, file access information is also printed.
- 1.1.5.1.7 Key File Recovery - permits a Key file which has been destroyed to be reconstructed from control information in the User file.
- 1.1.5.1.8 Conversion Utilities - used to convert files originally created under KFAM-1 or KFAM-2 to KFAM-3. There is another conversion utility to convert KFAM-3 files to KFAM-4. KFAM-3 and KFAM-5 files may be converted to KFAM-5 file format. An additional set of utilities convert KFAM-3 to KFAM-7 file format. KFAM-5 files will run under KFAM-7 without modification.

1.2 Hash File Access Method (HFAM)

Package 195-0039-3
Media 701-2260A
Manual 700-4721

This is an alternative access method to KFAM and utilizes an algorithm to convert the Input Record key to a physical address on the disk. This method dispenses with a separate key file and sequential searching for a new record. HFAM requires less than 6K of main memory, supporting a single key of up to 64 bytes. Sequential access is supported by means of a presorted data map, and multivolume files are allowed.

1.2.1 HFAM Utilities

1.2.1.1 Initialize HFAM File - creates a new HFAM data file and reinitializes or modifies the record format of an existing HFAM file. All four sections of all data records are set to HEX (00) when a file is initialized, the entire data map is set to HEM (FF).

1.2.1.1.1 Create New File Option - creates and defines a new HFAM file and automatically initializes it.

1.2.1.1.2 Modify Existing File Option - allows the user to add new fields at the end of the record format of an existing HFAM file without reinitializing the file or altering its contents.

1.2.1.1.3 Initialize Existing File Option - reinitializes a specified existing HFAM file so that it may be reused, the entire contents of the file are erased.

1.2.1.2 Reorganize File - used to change the number of volumes an HFAM file occupies and change the number of records allocated to each volume. The primary function of the utility is to expand or contract the file.

1.2.1.3 Dump File - used to generate a hard copy dump of a specified HFAM file. Any combination of the four sections of an HFAM file may be dumped - the header, key limits, data map and data records.

1.2.2 HFAM Subroutines

These form the operational heart of the HFAM system. They are used exclusively to access and manipulate data in HFAM files; to add new records to files; delete old records; update current records; extract data from current records. The user writes a BASIC application program to perform file updates and generate reports by calling the appropriate HFAM subroutines.

1.2.3 HFAM Sorting Procedure

Used to recover damaged files and also to construct a list of pointers (the data map) to the data records in ascending key sequence.

1.3 General Program Library

Package 195-0008-3/8
Media 701-2043B
701-8041/8042/8043
Manual See Below.

This is a collection of routines grouped by application.

1.3.1 Statistics/Engineering

Manual 700-3120D

Forty different routines of statistical or engineering interest are outlined, ranging from multiple-linear regression to CHI-square analysis. Engineering routines include oil-well depletion, head loss in a pipe, and Talbot's formula.

1.3.2 Mathematics

Manual 700-3118C

This package contains 44 routines ranging from roots of a quadratic or polynomial, matrix inversion, complex determinant and Fourier analyses.

1.3.3 Finance/Utilities/Games

Manual 700-3119B

Various financial routines, such as date calculations, annual debt repayments, and effective interest rates, are included in this 35 routine package. The utilities include histograms, polar plots, and numeric array manipulation. Sundry games utilizing the screen are also incorporated.

1.4 VP Operation System

Package 195-0033-3
Media 701-2188G

The VP Operating System and BASIC II interpreter are included on this diskette. The coding is loaded from the diskette into the VP control memory and also occupies approximately 3K of user memory. The version in current release is 1.8.

1.5 MVP Operating System

Package 195-0049-3
Media 701-2294C

The MVP Operating System incorporates the BASIC II interpreter, as well as the coding to control the partition generation and operation. The coding is loaded from the diskette into the control memory of the MVP and also occupies 3K of user memory plus 1K per partition. The version in current release is 1.3.

SECTION 2

PERIPHERAL UTILITIES

2.1 Nine-track Tape Utilities

Two packages are available, one for the model 2209, 800 bpi tape drive:

Package	195-0017-1/3
Media	701-0335 (cassette)
	701-2033 (diskette)
Manual	700-3673B

or for model 2209A, 1600 bpi tape drive:

Package	195-0031-3
Media	701-2203A
Manual	700-4325

The layout for both packages is identical.

- 2.1.1 Initialize/Rewrite Volume Label - creates a label or overwrites an existing label on a nine-track tape.
- 2.1.2 Write Data on Tape - used to write data from memory onto a nine-track tape as specified by the user (data may come from keyboard, cassette, or disk).
- 2.1.3 Read Data from Tape - reads data from tape as specified by the user.
- 2.1.4 Tape to Disk Data Transfer - used to transfer data from nine-track tape to disk with or without translation.
- 2.1.5 Disk to Tape Data Transfer - reads on appropriately formatted disk file and writes it on a nine-track tape with or without translation.
- 2.1.6 Card Reader to Tape Data Transfer - accepts data from standard 80-column (Hollerith) punched cards and creates an unlabeled or a labeled tape depending on the structure of the card deck.
- 2.1.7 Tape Dump - dumps data from tape in EBCDIC hexadecimal form and in ASCII alphanumeric form.
- 2.1.8 Logical I/O Control System - subroutines which perform the logical control operations (e.g., OPEN and CLOSE, READ and WRITE, and the translation from EBCDIC to ASCII or ASCII to EBCDIC).
- 2.1.9 Physical I/O Control System - subroutines which can perform physical tape operation (e.g., backspace to write, backspace a record, forward space to write, backspace a file, forward space a file, rewind, "write" a gap, clean tape, re-read a block, write a File Mark (EOF), write a block, and read a block, etc.).

2.1.10 Tape-to-tape conversion 800 BPI NRZI to 1600 BPI PE. (2209A only.)

2.2 Digitizer Utilities

Package 195-0012-1/3
Media 701-2031/0290
Manual 700-3729A

- 2.2.1 Menu Definition - enables a user to define or recall a menu. A "menu" is a coordinate grid, each of whose squares or "cells" has a unique and identifying name. Each cell name is further associated with a particular operation or routine in the main program.
- 2.2.2 Area Utility - computes and displays the area of any polygonal or curvilinear plane figure in scaled units.
- 2.2.3 Equal Scaling - computes rotation and displacement factors necessary to convert the digitizer's absolute coordinates into the user's real coordinate system. Additionally, a scale factor is computed for the X and Y axes.
- 2.2.4 Unequal Scaling - computes rotation and displacement factors necessary to convert the digitizer's absolute coordinates into the user's real coordinates. Additionally, separate scale factors are computed for the X and Y axes.
- 2.2.5 Coordinate Transformation - computes rotation and displacement factors necessary to convert the digitizer's absolute coordinates into the user's read coordinate system; however, it does not compute a scale factor.
- 2.2.6 Image Storing - enables a user to digitize a plane figure and store the coordinates in one or more data files on disk or tape.
- 2.2.7 Image Plotting - plots images which have been stored on disk with the Image Storing Utility. One or more sections from an Image file may be plotted. The image may be enlarged or reduced, and its resolution factors are specified by the operator.
- 2.2.8 Direction and Distance - calculates the distance in real units between two digitized points and the angular direction of the new point relative to the user's (real) X axis.
- 2.2.9 Inquiry/List - displays and/or prints file names, section ID's, and optionally, identification records created by the Image Storing Utility.
- 2.2.10 Regression Analysis - provides a routine for polynomial regression with coefficients only. Printed output includes number of observations (data points), order of the polynomial, input data (X and Y coordinates), summations of the raw data (their values, their powers, and their cross-products), the regression coefficients, and a table containing raw data, corresponding calculated values and their residuals.

- 2.2.11 Interpolation - this program offers the capability to interpolate the values of points on a line between two known points.
- 2.2.12 Backup Routine - used to create backup copies of data disks containing digitizer images or menu files in systems equipped with a single disk and a tape cassette drive.

2.3 Card Reader Utilities

Package	195-0016-1/3
Media	701-0328B (Tape cassette) 701-2053B (Diskette)
Manual	700-3865A (Tape version) 700-3866 (Diskette version)

- 2.3.1. Card Image Out - reads Hollerith, program or Binary formats into memory, transfers images to an output buffer and then writes the buffer to a disk platter or a tape cassette.
- 2.3.2. Card Image Dump - reads a card in Hollerith, Wang, or Binary formats or a card image from tape or disk and prints a line number, the record size, and the card image.
- 2.3.3 Card Image to Printer - reads card images from the card reader, tape, or disk and prints user-defined fields.
- 2.3.4 Card Program List - lists program cards in a Hollerith or GAEC/Wang deck onto a printer or Selectric typewriter.

2.4 Plotter Utilities

Package	195-0021-1/3
Media	701-0383A 701-2077A
Manual	700-3838A

- 2.4.1 Set Plotter Boundaries - used to initialize, and subsequently, to reset the limits of the active plotting area.
- 2.4.2 Plot Character String (straight line) - plots a specified string of alphanumeric characters on a straight line.
- 2.4.3 Plot Character String (circle) - plots an alphanumeric character string on the circumference of a circle where the center coordinates and radius length have been user specified.
- 2.4.4 Load Character Generation Array - loads a previously initialized character data file from a disk or tape into a receiving character generation array in memory.

- 2.4.5 Plot Line Between Two Points - plots a straight line between two defined points. The line may be solid, dashed, dotted or dashed/dotted.
- 2.4.6 Plot Coordinate Grid - plots a grid of horizontal and vertical grid lines within the active plotting area.
- 2.4.7 Plot Circle - plots a circle whose center point, radius length and "degree of smoothness" are user specified. (A variety of regular polygons may also be produced with this routine.)
- 2.4.8 Plot Border Around Active Plotting Area - plots a border (solid line, dashed line, dotted line, or dashed/dotted line) around the active plotting area (as established in "Set Plotter Boundaries").
- 2.4.9 Plot Instruction Emulator - enables the programmer to perform a variety of primitive plotter operations. It is a powerful programming tool for general plotter control.
- 2.4.10 Plotter Control Routine - used by the Plot Instructions Emulator in order to execute plotting instructions.

2.5 Graph Utility System (GUS)

Package	195-2044-3
Media	701-2232
Manual	700-4335A

- 2.5.1 The Graph Utility System provides a convenient tool for creating, updating, and saving the information necessary for initiating a plot. The system consists of a stand-alone program which enables the user to draw and label 2- and 3-dimensional graphs of several types, variable sizes, and from varying data sources, on any plotter currently supported by Wang.

2.6 Format Utility for 2260C Fixed/Removable Disk

- 2.6.1 This is a free-standing utility to format the fixed or removable platter of a 2260C disk drive, which, unlike the 2260B drive, does not have a separate, external format key switch.

SECTION 3

TELECOMMUNICATIONS UTILITIES

The individual telecommunications utilities have been combined into logical packages for ease-of-use. All current emulators are available under the following headings as components of TC software release 4.0.

3.1 ASync 1 Telecommunications

Package	195-2056-3/8
Media	701-2358 701-8112
Manual	700-4718

This package works on a 2227B or 2228B controller board with a minimum of 8K user memory required. Both the Teletype and the 2741 emulations are provided.

3.2 BSC 1 Telecommunications

Package	195-2057-3/8
Media	701-2357 701-8109, 8110, 8111
Manual	700-4719

This package provides emulators operating under the binary synchronous communications protocol. The emulators provided are 2780, 3780, 3741 and HASP workstation. A 2200 to 2200 version is also included. The 2780, 3780 and 3741 protocols require a minimum of 8K user memory, the HASP and 2200/2200 versions require a minimum of 16K. A 2228B controller board is required.

3.3. Burroughs Emulation

Package	195-0047-3/8
Media	701-2355 701-8107

This is an emulation code set for the Burroughs TC 500 poll-select protocol. It is designed for inclusion in the customer's application package and user provides the I/O routines. A 2228B controller board is required.

3.4 TC Support Utilities

Package	195-0026-3/8
Media	701-2110A 701-8114

This package operates with either a 2227B or 2228B controller board and provides several utility routines.

- 3.4.1 Data Entry 1 - allows the user to enter card images through the screen/keyboard for dumping onto a diskette in Telecommunications format. This data can then be subsequently transmitted using one of the above protocols. Editing capabilities are available allowing record addition, deletion and insertion.
- 3.4.2 Atomize - allows the atomization of a BASIC language program previously received from a remote system and currently stored as a TC formatted disk data file. The file is converted to a standard Wang program file format.
- 3.4.3 Deatomize - allows the user to deatomize a BASIC language program currently stored on disk in Wang's standard program file format, and convert the program file into a TC formatted disk data file suitable for subsequent transmission to a remote system.
- 3.4.4 List/Dump TC Files - this utility allows the printing of disk files held in TC file format. Options include CRT or Printer and ASCII or HEX.
- 3.4.5 Offline Print Utility - used to recover files received via Wang TC emulator using the print spooled to disk option. A list may be specified containing files to be printed from various disk surfaces. Optional print to the CRT is available.
- 3.4.6 TC Subroutines - the routines are loaded from the main menu, allowing the user to save, modify or build around them. This can be used for converting, reading or writing TC files.

3.5 3740 Diskette Compatibility Software

Package	195-1030-3
Media	701-2212A
Manual	700-4369B

- 3.5.1 Convert 3741 to TC Format - converts a 3740 (3741) file to a Wang TC formatted file, creating fixed length records by adding space characters, if necessary, to satisfy the record length specified in the 3740 index track. During file conversion, the display indicates the record currently being processed.
- 3.5.2 Convert TC Format to 3741 - converts a Wang TC formatted file to a 3740 (3741) file. During the file conversion, the display indicates the record currently being processed; records longer than 128 bytes are truncated.
- 3.5.3 List 3741 File - provides hardcopy of a 3741 file on a printer. Records are read and dumped with no attempt to format the data; non-printable characters are printed as question marks (?).
- 3.5.4 List TC Formatted File - provides hardcopy of a TC formatted file on a printer. Records are read and dumped with no attempt to format the data; non-printable characters are printed as question marks (?). Records longer than 128 bytes are truncated on the hardcopy only, not on the disk or diskette.

- 3.5.5 List 3741 Catalog - displays a list of the files on the currently mounted 3741 diskette. Sector addresses corresponding to 'BOE' (beginning of extent), 'EOE' (end of extent), and 'EOD' (end of data) are given in addition to the name of each file.
- 3.5.6 Dump 3741 Sector(s) - displays a specified set of 3741 sectors with no attempt to format the data; non-printable characters appear as question marks (?).
- 3.5.7 Application/Subroutines - provides access to a sample application program which includes a menu of available utility subroutines, also prompts designed to demonstrate the file maintenance capabilities of the subroutines which simulate the following types of Wang disk operations:
1. opening a new or existing file;
 2. reading, re-reading, or writing a sector;
 3. skipping or backspacing a specified number of sectors;
 4. writing or updating an "end of data" pointer position;
 5. closing a file.

SECTION 4

LANGUAGES

4.1 BASIC

Manual 700-3231F/700-30384
Media Provided as firmware

Wang System 2200 BASIC is an algorithmic language modeled after the BASIC language first written at Dartmouth College. The language is a powerful tool due to its extensive capabilities with disk operations, matrix commands, and General I/O. Yet, due to its similarity to the English language, it enables a person to become familiar with it with relative ease.

4.2 BASIC-II (2200VP and 2200MVP)

Manual 700-4080A
Media Provided as VP or MVP Operating System.

BASIC-2 is a modified version of the original Wang BASIC which has been enhanced to provide several new alphanumeric/binary operations, improved I/O, a revised math package, more powerful edit features, and improved decision-making capabilities. Other features and benefits have made this a powerful and extremely versatile programming language well-suited for both technical and commercial applications.

4.3 Report Program Language (RPL)

Package 195-0019-3
Media 701-2247
Manual 700-3766A

RPL utilizes a high-level instruction set for the purpose of generating programs to print reports from existing files. Report formats are determined by the user.

The three BASIC components of RPL are the system program, source program, and object program. The system program contains the logic to create the source and object programs. The source program, which is written in RPL, is compiled, producing BASIC object programs. This can then be executed to produce the report desired.

SECTION 5
SYSTEM UTILITIES

5.1 EASYFORM III

Package	195-2058-3
Media	701-2392, 2393
Manual	700-4775

This utility is designed to allow non-programmer users to design their data entry form, store it on disk and subsequently interrogate and print their accumulated data file. A single key of 1 to 30 characters per form is accommodated and up to 50 fields may be assigned, maximum 720 characters. Considerable editing capability is provided as well as automatic field filing, data validity checking and math functions. The data may be selectively searched on any field for full or partial match and the data printed out in screen image, data image, or customer specified format to match preprinted stationery.

5.2 Text Editing Utilities

Package	195-0018-3/8
Media	701-2055D 701-8073A
Manual	700-4043C (Diskette) 700-4452 (Minidiskette)

- 5.2.1 Log On/Off - logging off clears the terminal number from the "active" file on the system disk. Failure to log off before clearing memory prevents logging on with the same terminal number. Logging on causes System Startup procedures to run.
- 5.2.2 Initialize Volume - prepares a volume for storing text on a disk by creating the data file and initializing the Table of Contents and the pointers. A volume is a cataloged data file of 1,007 sectors (345 in the minidiskette), containing a Table of Contents and the necessary pointers to store one or more documents.
- 5.2.3 Text Editor - used for inputting text directly into the system (stored on disk) or for correcting text already stored on disk.
1. Text Entry - inputs text onto a disk.
 2. Positioning the Cursor - used in Edit mode to position the cursor.
 3. Inserting Text - used in Edit mode to insert a single character, a word, a sentence, or a paragraph.
 4. Deleting Text - used in Edit mode to delete a character, a word, a line, or a sentence from the text.

5. Disk Operations - allows 15 lines at a time to be read from the disk and displayed, rewrites a page (after editing) back onto the disk, displays the original page prior to the changes (before it has been rewritten onto disk), and searches the disk or CRT for a specified word or phrase.
- 5.2.4 Disk Table of Contents - lists the Table of Contents in alphabetical order giving the amount of space taken up by each document, line size, and disk space available.
- 5.2.5 Copy Text - serves three functions:
1. Copies an entire volume for backup protection.
 2. Copies a single document.
 2. Extracts part of one document and gives it a new name.
- 5.2.6 Move Text - rearranges sections of a text within a document (only lines in their entirety may be moved). A section of text to be moved may be a line, paragraph, or many paragraphs. A maximum of 9 section moves is allowed at a time.
- 5.2.7 Global Replace - makes the same change to the text as many times as it appears within a document. The two options are:
1. Automatically replace every instance of a specified character string with another.
 2. Stop at every instance of a specified character string and either replace it or leave it unchanged.
- 5.2.8 Delete a Document - removes unwanted documents from a disk so that new information may be stored in its place.
- 5.2.9 Document/Letter Assembly - assembles paragraphs and/or documents or creates form letters to be printed out (names and addresses may be saved for letters).
- 5.2.10 Print Addresses - prints names and addresses (if they were saved), from the last list of assembled letters.
- 5.2.11 Print a Document - produces printed output of text stored on disk either formatted or unformatted as specified.
- 5.2.12 Data Conversion Program - converts text stored on disk in the original text editing format to the format currently used by the new version of text editing.