HONEYWELL

DPS 6
GCOS 6 MOD 400
GUIDE TO
SOFTWARE
DOCUMENTATION

SOFTWARE

DPS 6

GCOS 6 MOD 400
GUIDE TO SOFTWARE DOCUMENTATION

SUBJECT

Summary of GCOS 6 MOD 400 Software and the Supporting Software Manual Set

SPECIAL INSTRUCTIONS

This manual supersedes the *DPS 6 GCOS 6 MOD 400 Guide to Software Documentation* (CZ01-00). This edition contains added information reflecting new software and new software documentation available with Release 3.1 of MOD 400.

GCOS 6 software products and supporting documentation are updated and enhanced periodically. The evolution of the GCOS 6 MOD 400 system and the manual set will be actively monitored; updates to this manual will occur periodically to ensure that the manual remains useful and helpful.

HARDWARE SUPPORTED

The GCOS 6 MOD 400 operating system executes on DPS 6 systems, microSystem 6/20 systems, and disk-based microSystem 6/10 systems.

ORDER NUMBER

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PREFACE

This publication is written for all users of the Executive. It is the lead document of the documentation set. The manual is designed to introduce you to the software components and the supporting documentation. It does not contain any conceptual or procedural information on the system.

The major topics are:

- A summary of software products available with the Executive, including brief functional descriptions of the software components
- A discussion of the manual set, including:
  - — Brief synopses of the manuals
  - — Suggestions for using the manual set effectively when performing different functional roles
- A software/manual matrix
- A master index.

After reading this manual, you should have a general picture of the software composing the system, and be sufficiently familiar with the manuals to be able to locate the particular kinds of information you require.

USER COMMENTS FORMS are included at the back of this manual. These forms are to be used to record any corrections, changes or additions that will make this manual more useful.

File No.: 1R13, 1S13, 1613

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Section 1
SOFTWARE SUMMARY

When ordering software, you can obtain the Executive and various separately-priced components that run under control of the Executive.

EXECUTIVE SOFTWARE

The following software is available as part of the Executive:

System Control Software
File System Software
Physical Input/Output Software
Communications Software
System Building Software
Line Editor
Linker
Patch Facility
Debug Facilities (Symbolic and Numeric Modes)
Dump Facilities
General Utility Software (Excluding Sort)
Hardware Simulators
System Maintenance Facility
Display Formatting and Control

The remaining software, including the language compilers and various facilities for achieving distributed processing, are available separately.

This section includes a brief description of each of the software components.

System Control Software

System control software includes:

- Task Manager — Handles the disposition of tasks within the system, responds to requests placed against tasks, processes requests to activate tasks, returns control to interrupted tasks, and synchronizes, suspends and terminates tasks.

- Clock Manager — Handles all requests to control tasks based on real-time considerations and responds to requests for the time of day and date in ASCII format.
- Memory Manager — Controls dynamic requests for memory or the return of memory to a memory pool.
- Trap Manager — Handles the transfer of execution control from an executing program to a predefined trap location when a trap (a special condition such as a hardware error) occurs. The trap manager handles system traps and allows a task group to connect its own trap routines for specific traps.
- Operator Interface Manager — Manages all messages sent simultaneously by multiple task groups to the operator terminal or from the operator terminal to a task group.
- Loader — Loads the root and overlays of a bound unit dynamically from a disk.
- Listener/Login — Monitors a selected set of local and remote terminals, reporting any change of state (e.g., connect, disconnect) to the login component. If you submit a Login command requesting access to the system, the login component requests that a task be spawned for you.
- Command Processor — Processes all commands; it is the lead task of the batch task group and can be the lead task of an online task group.
- Message Facility — Provides for inter/intra task group communication. The message facility uses mailbox structures for sending/receiving messages.

You can obtain system control functions through system commands, system service macro calls (for Assembly language programs), and statements in high-level languages.

File System Software

The File System is based on a tree-structured hierarchy. Software functions are provided to create or maintain this directory structure, locate a file by its pathname, create and maintain data files, control concurrent use of files, and provide for the logical transfer of records between an application program and an external device. These functions are available through commands or, for an Assembly language program, through system service macro calls.

The File System software handles input/output functions of each of the different supported devices, including communications. Six file organizations are supported:

- UFAS sequential
- UFAS indexed
- UFAS relative
- UFAS random
- UFAS alternate index
- UFAS dynamic

Also, the pipe attribute enables a sequential file to be processed as a pipe.

In addition to the standard UFAS organizations, fixed-relative organization is supported for compatibility with BES applications. The data file organizations and their properties are described in the *Data File Organizations and Formats* manual.

The high-level languages use the logical file organizations listed above. The language reference manual for each language provides statements for accessing the logical files.

An Assembly language program accesses files through file and data management macro calls or through the physical I/O drivers; both methods are described in the *System Programmer's Guide — Volume I.*

The interface to communications software is described in the *System Programmer's Guide — Volume I.*

Physical Input/Output Software

An Assembly language program can issue requests to physical input/output driver software which works at the hardware physical level. Each peripheral and communications device type has a driver. A driver is a reentrant procedure that controls one or more devices. The procedures for the peripheral drivers and communications are described in the *System Programmer's Guide — Volume I.* Macro calls for physical I/O and communications are described in the *System Programmer's Guide —Volume II.*

Communications Software

Communications software is accessible through the standard input/output interface, memory and communications processor resident, and interacts with Executive software to process user communications applications. With the system-supplied communications software, you do not need to provide your own communications system programs.

The communications software is user-driven; it answers the phone in response to a user-issued connect and polls terminals in response to user-issued reads. You must provide buffers to the communications software to accommodate read and write operations (this applies to both application or system software users).

Communications software provides a common I/O interface through the standard physical I/O interface (the $RQIO macro call).

System Building Software

Honeywell supplies an interactive system generation utility program; this program asks the system builder pointed questions and uses the responses to create an appropriately specialized file of building directives. (Alternatively, the system builder can use one of the Editors to create the directive file by hand.) The building directives are then processed by the Configuration Load Manager (CLM), which uses the information in the directives to build the system.

Line Editor

The Line Editor creates and updates, on disk, a source unit written in one of the provided programming languages. It edits characters, expressions, or lines of text. The Line Editor directive language is described in the *Application Developer's Guide* and the *System Programmer's Guide — Volume I.*

Linker

The Linker combines object units that are the output of a compiler or the Assembler and produces a bound unit for subsequent loading. It resolves external references made between object units being linked. Linker directives are used to create reentrant bound unit files. Linker directives are described in the *Application Developer's Guide* and the *System Programmer's Guide — Volume I.*

Patch Facility

The Patch utility program applies patches to and removes patches from object units and bound units. Patch is also used to list all patches for an object unit or bound unit. Execution of Patch is controlled by directives entered from the operator's terminal, another terminal, a card reader, or a sequential file. Patch directives are described in the *Application Developer's Guide* and the *System Programmer's Guide — Volume I.*

Debug Facilities (Symbolic and Numeric Modes)

Debug software is used for testing programs at the machine language level. There are two debuggers available: the Multi-User Debugger (in symbolic and numeric modes) and the single-user Debugger. Hexadecimal patches can be made to the program. A debugging program that can be invoked in your task group and a debugging program that can be invoked as a separate task group are included. The Multi-User Debugger is described in the *Application Developer's Guide* (symbolic mode) and the *System Programmer's Guide — Volume I* (numeric mode). The single-user Debugger is described in the *System Programmer's Guide — Volume I.*

Dump Facilities

An MDUMP utility program and a Dump Edit utility program are also included. Dumps produced by Dump Edit are in edited format, so they are easier to interpret. If an executing program encounters a problem, use Dump Edit to obtain the dump or dump memory to a disk file using the MDUMP utility program and then print the memory dump using Dump Edit. The MDUMP program and the Dump Edit program are described in the *Application Developer's Guide* and the *System Programmer's Guide — Volume I.*

A DUMCP program is available to dump the contents of all or part of the Multiline Communications Processor (MLCP) memory. The DUMCP program is described in the *Application Developer's Guide.* A Dump Communications Processor (DCP) program is also available to dump the contents of all or part of the Random Access Memory (RAM) resident on either the MLCP or the MLC-16. The DCP program is
described in the *System Maintenance Facility Administrator's Guide.*

General Utility Software

A comprehensive set of utility programs is available to perform commonly-used programming functions. These utility programs are described in further detail in the *Commands* manual (unless otherwise indicated).

- Abbreviation Processor — Expand user-defined abbreviations in command lines.
- Abort Batch — Suspend, terminate, and delete the batch task group.

- Abort Batch Request — Terminate the execution of the current batch request.
- Abort Group — Suspend, terminate, and delete a task group.
- Abort Group Request — Terminate the execution of the current request in the indicated task group.
- Accept Message Mailbox — Accept, in asynchronous mode, messages in a mailbox queue; messages are deleted immediately after they are received.
- Activate Batch — Roll in and resume execution of the previously rolled-out and suspended batch task group.
- Activate Group — Resume execution of a previously suspended online task group.
- Add/Delete Message — Add messages into or delete messages from the Message Library.
- Adjust Buffer Pool — Adjust a specified private (user-specific) buffer pool by enabling or disabling a specified number of buffers.
- Analyze Index — Analyze an alternate index looking for index inconsistencies.
- Assign Recovery File — Assign the recovery file to a specified directory and assign allocation sizes.
- Associate — Make the specified Logical File Number (LFN) a synonym for the indicated pathname.
- Auto Report — Produce an RPG source program from a file.
- Break Off — Disable break key functionality within the issuing task group.
- Break On — Enable break key functionality within the issuing task group.
- Buffer Pool Information — Print a detailed status of a specified buffer pool and optionally reset the pool's statistical counters.
- Buffer Pool Status — Print a summary status of the buffer pools.
- Bye — Terminate execution of the current request in the issuing task group and release user-owned resources.
- Cancel Mount Request — Cancel a volume mount request.
- Cancel Queue Request — Cancel request(s) in a print, punch, batch, or task group's request queue, or messages in a task group's mailbox.

- Cancel Screen Request — Terminate the print screen utility task.
- Change Group Priority — Change both the base level and priority level of each task within a named task group.
- Change Message Library — Allow the named Message Library to be the first one searched by the Message Reporter.
- Change System Directories — Change the system root directory and/or the library search rules.
- Change Working Directory — Change the working directory to the specified disk directory.
- Check Mass Storage Volume — Check the accuracy of the directory information related to the allocation of data on a mass storage volume.
- Checkpoint File Assignment — Establish (or terminate) the checkpoint file assignment for the issuing task group.
- Close Journal — Close the after image journal file.
- Command Accounting Conversion — Convert command-accounting data in binary format into raw command-accounting data in ASCII format.
- Compare — Perform a file-to-file or volume-to-volume comparison.
- Compare ASCII — Compare a sequential disk file to its edited version.
- Compare Data Exchange — Logically compare DPS 6 (native) disk files to IBM diskette files (and vice versa); compare IBM diskette volumes by physical sectors.
- Console Log Reporter — Provide capability to view either the current or previously created log files.
- Convert Date — Convert a short-form representation of the date and time to the long form.
- Copy — Copy one or more files or a single volume; copies can be placed on tape or disk.
- Copy Data Exchange — Copy and translate IBM disk files to DPS 6 (native) disk files (or vice versa); copy an IBM diskette volume to another IBM diskette volume.
- Create Batch — Perform the initialization necessary to initiate the batch task group.
- Create Buffer Pool — Create a buffer pool having the specified number of buffers on the specified size.

- Create Directory — Create a new disk directory.
- Create File — Create the specified disk file.
- Create Group — Perform the initialization necessary to define an online task group.
- Create Group Request Queue — Create, on disk or in memory, a task group request queue for the specified task group.
- Create Index — Create the specified alternate index and link it to a disk data file.
- Create Mailbox — Create a mailbox to contain messages for communicating between task groups, or for daemon processing of batch and print/punch queues.
- Create Task — Perform the initialization necessary to initiate a task within the issuing task group.
- Create Volume — Create or modify a volume.
- Create Volume for Data Exchange — Create a diskette volume for data exchange that is acceptable on IBM equipment.
- Deferred Print — Queue a request for deferred printing of the indicated file.
- Deferred Punch — Queue a request for deferred punching of the indicated file.
- Delete Access — Delete entries from the Access Control List (ACL) of a file or directory.
- Delete Batch — Mark the batch task group as eligible for deletion when it becomes dormant.
- Delete Buffer Pool — Delete a specified buffer pool.
- Delete Common Access — Delete entries from the Common Access Control List (CACL) of a directory.
- Delete Cumulative File — Delete records from the cumulative error log file. (See the *System Maintenance Facility Administrator's Guide*.)
- Delete Directory — Delete a disk directory and release the disk space allocated to it.
- Delete File — Release the space occupied on disk by the named file and delete the directory entries describing the file.
- Delete Group — Mark a task group as eligible for deletion when it becomes dormant.
- Delete Index — Release the disk space for the alternate index and delete the directory entries describing the index.

- Delete Mailbox — Delete a previously created mailbox.
- Delete Task — Mark a task as eligible for deletion from the issuing task group when the task becomes dormant.
- Disk Evaluation — Return the absolute pathname of a directory or file, given a sector number on the disk.
- Display — Display a message which may or may not be found in your current message library.
- Display Counts — Allow the arrays in system-dedicated memory to be cleared in a protected environment. Output display to User-Out.
- Display Journal — Display status information about the current journal file.
- Dissociate — Terminate the association between the indicated logical file number and pathname, established by a previous Associate command.
- Display Communication Statistics — Dump communication statistics for the indicated subsystem, channel, or station. (See the *System Maintenance Facility Administrator's Guide*.)
- Dump Edit — Transfer to the user-out file (in an annotated, edited display) the contents of a previously written memory dump file or the contents of current memory. The user-out file must be a device that provides 132 print positions per line.
- Edit Profile — Create and modify user profiles. (See the *System Building and Administration* manual.)
- Enter Batch Request — Enter a group request into the batch task group request queue.
- Enter Group Request — Activate the lead task of an online task group previously created by a Create Group command.
- Enter Task Request — Allocate and initialize a task request block and place it on the request queue of the indicated task.
- Execute — Invoke the command (EC) processor to read commands from a designated file.
- Extend Bound Unit — Extend the patch space of an existing bound unit.
- File Change — Change the contents of a disk sector or control interval.
- File Change for Data Exchange — Change the contents of an IBM diskette physical sector.

- File Dump — Dump the contents of the specified disk or magnetic tape file or the contents of the specified area of a disk or magnetic tape volume to the user-out file; the output is in ASCII, hexadecimal, or octal notation.
- File Dump for Data Exchange — Dump, by physical sectors, the contents of an IBM diskette.
- File Out — Change the destination of where user output is sent.
- File Status — Display the current status of one or all files reserved by your task group.
- Find — Write, to the user-out file, the low memory address and the high memory address of each segment of virtual memory visible to the current user.
- Format — Automatically paragraph and indent Pascal programs in a consistent manner.
- Form Transfer — Run the Forms Transfer utility after creating the Forms Storage File.
- Get File — Reserve a file and establish a logical connection between the reserved file and a logical file number.
- Get Quota — Write quota information to the user-out file.
- Grow File — Extend an existing disk file by a specified number of control intervals.
- Hash Check — Perform a hashing check on all files in a specified directory and display the results.
- Initialize Tape — Create (format and label) a magnetic tape volume.
- Initiate Communication Statistics — Initiate the collection of communication statistics for the indicated subsystem, channel, or station. (See the *System Maintenance Facility Administrator's Guide*.)
- Invoke Remote Batch Task Group — Invoke a Remote Batch Terminal (RBT) task group and associate it with a logical stream.
- Keyboard — Set up Display Formatting and Control keyboard assignments.
- Kill Task — Abort a currently executing task.
- Link Name — Establish a link to a specified file, directory, index, device, or some other link.

- List Access — Print the access rights for a specified disk file or directory.
- List Access Control List — Print all access entries (access control list and common access control list) for a specified disk file or directory.
- List Bound Unit Attributes — List bound unit attributes.
- List Common Access — Print the entries from the Common Access Control List (CACL) for the specified directory.
- List Creation Date — List the following information for object and bound unit files in a directory: creation date and time, file name, address mode, bound unit type (if applicable), revision number of the compiler or Linker, and information on .L and MAP source files.
- List Home Directory — List pathname of the default working directory.
- List Identifier — List the Software Technical Identifier (STI) that identifies the software.
- List Message Library — Determine the primary Message Library to be searched.
- List Mount Request — List outstanding volume mount requests.
- List Names — List information about one or more File System entities (directories and/or files) contained in the working directory or in a specified directory or directories; may be listed in brief, normal or detailed format.
- List Names Data Exchange (IBM) — List, by file name, the contents of an IBM diskette.
- List Profile — List the specified sections of the invoker's profile.
- List Queue Request — List pending requests in a queue.
- List Search Rules — Display the search rules currently defined for the issuing task group.
- List Tape Contents — Print information about 9-track, labeled, ASCII tape files.
- List Working Directory — Display the absolute pathname of the working directory.
- Load Band Image — Define the sequence in which characters are presented to the print mechanism.
- Load Index — Load the specified alternate index file.

- Load Sharable Bound Unit — Load a sharable bound unit into the system memory pool.
- Login — Gain access to the system.
- Mail — Send mail to another task group's mailbox or display all mail in your own task group's mailbox.
- Memory Clear Off — Disable memory clear functionality within the issuing task group.
- Memory Clear On — Enable memory clear functionality within the issuing task group.
- Menu Print — Print the contents of a menu or menu catalog on the console or on a hard copy device.
- Menu Processor — Change from a command-line-oriented environment to a screen-oriented, menu driven environment.
- Merge Files — Merge the records of up to eight sequential, relative, or indexed files.
- Message — Send a message from a user command device to the operator terminal.
- Modify Directory Attributes — Modify the attributes of a disk directory.
- Modify External Switches — Modify selected external switches associated with the issuing task group.
- Modify File — Modify the attributes of a disk file.
- Modify Reboot Parameters — Allow valid alterations to the reboot parameters without requesting a reboot.
- More Help Off — Turn off message chaining.
- More Help On — Turn on message chaining.
- New Process — Abort the current task group request and restart the task group using the same arguments as specified in the original group request or during login.
- Now — Display the current day, date, and time.
- Open Journal — Establish an after image journal file.
- OPER — Allow a specially configured operator terminal to function alternately as an operator terminal and a user terminal.
- Peruse Directory — Scroll through, format, and write to the user-out file the indicated portion of the directory hierarchy.
- Peruse File — Scroll through, format, and write to the user-out file the indicated portion of the source file.

- Prime Index — Preinitialize the index of an indexed sequential file.
- Print — Print the contents of the indicated file to the user-out file.
- Print Cumulative File — Print data from the error log cumulative file. (See the *System Maintenance Facility Administrator's Guide*.)
- Print Debug Quick File — Print the disk file generated by Multi-User Debugger quick breakpoints.
- Print Error Log — Print error logging information for the device(s) specified. (See the *System Maintenance Facility Administrator's Guide*.)
- Print Hold File — Print error logging information for memory or a device from the specified hold file. (See the *System Maintenance Facility Administrator's Guide*.)
- Print Screen Request — Activate loading of the print screen utility and monitoring of the special print screen function key.
- Program Interrupt — Signal a program interrupt condition to a task.
- Queue Report — Enter into a report queue the name of a report that will subsequently be unspooled; associate with the report a specialized profile that governs the details of the unspooling.
- Ready Off — Suppress the ready message printed at the completion of each command.
- Ready On — Activate the printing of the ready message at the completion of each command.
- Reboot — Allow valid alterations to be made to the reboot arguments before rebooting the system or request the reboot of the system using the existing reboot arguments.
- Recover Files — Cause a system-wide rollback of recoverable files after a system failure occurred.
- Remove — Cancel a previous file reservation.
- Rename — Change the name of an existing disk file or directory.
- Reorganize Index — Reorganize an indexed sequential file or an alternate index.
- Report Queue Maintenance — Create, modify, view, renew, rename, and/or delete a report queue.

- Restart Initiation — Restart the issuing task group at the most recent valid checkpoint on the currently assigned pair of checkpoint files.
- Restore — Restore disk files and directories previously saved by the Save command.
- Rollforward — Update a disk file by applying after images from a journal file.
- Save — Save the specified disk volume (root directory), disk directories and/or files for a subsequent restore (by a Restore command).
- Send Message Mailbox — Send a message to another task group.
- Set Access — Update the access control list of a file or directory by adding new entries or changing the access mode of an existing entry.
- Set Autodial Telephone Number — Insert the specified telephone number into the first entry of the autodial telephone number list for the specified line; used when establishing a connection on a switched circuit line.
- Set Common Access — Update the file or directory Common Access List (CACL) of a directory by adding a new entry or changing the access mode of an existing entry.
- Set Date — Set the system internal clock to the indicated date and time.
- Set Error Logging — Set the error logging level, initialize error logging files if necessary, and accumulate error logging information over an extended period of time. (See the *System Maintenance Facility Administrator's Guide*.)
- Set Listener — Enable or disable the Listener for the specified terminals or terminate the Listener.
- Set Terminal Characteristics — Change the file characteristics of a terminal.
- Shrink File — Shrink a disk file by releasing any disk space beyond the logical end of data.
- Sort Files — Sort the records of up to eight sequential, relative, or indexed files.
- Spawn Group — Create, request the execution of, and then delete a task group.
- Spawn Task — Create, request the execution of, and then delete a task within the issuing task group.

- Start — Resume execution of the previous command level when the level has been interrupted, or resume execution of a task.
- Start Error Logging — Maintain error log data on memory or on the named device. (See the *System Maintenance Facility Administrator's Guide*.)
- Start Mail — Activate the local mail facility.
- Status Group — Display the status of the issuing task group.
- Status System — Display general system status.
- Status Terminal — Display information regarding the status of all terminals configured on the system.
- Stop Error Logging — Deactivate error logging for memory or the named devices. (See the *System Maintenance Facility Administrator's Guide*.)
- Stream — Transfer information (in stream mode) from streamer tape to a specified disk or from a specified disk to a streamer tape.
- Suspend Batch — Temporarily terminate the execution of the batch task group, and roll it out of memory.
- Suspend Group — Temporarily terminate the execution of the specified online task group.
- Swap Journal — Close the current journal tape/disk volume and open the next one.
- System Information — Return system parameters obtained from the system data bases.
- Tape Position — Position magnetic tape forward or backward to a specific block, tape mark, or file name.
- Terminate Communication Statistics — Terminate the collection of communication statistics for the indicated subsystem, channel, or station. (See the *System Maintenance Facility Administrator's Guide*.)
- Terminal Identification — Return the appropriate terminal identification.
- Time — Display the current date and time in ASCII format.
- Transaction Control Language Processor — Initiate the Transaction Control Language Processor (TCLP).
- Transmit File — Transmit or receive data between two DPS 6 systems.

- Unlink Name — Delete the specified link name.
- Unload Sharable Bound Unit — Unload from the system memory pool the sharable bound unit previously loaded with the Load Sharable Bound Unit command.
- Unlock Dumpfile — Unlock the currently configured dumpfile.
- Unspool — Transcribe previously queued disk and tape reports to a printer or card punch.
- Unwind — Terminate processing of the current command line.
- Update Cumulative File — Delete all raw records and update the cumulative error logging file. (See the *System Maintenance Facility Administrator's Guide.*)
- User — Return user parameters obtained from the system data bases.
- Validate Checkpoint — Examine the specified pair of checkpoint files for a valid restartable checkpoint.
- Value — Define and maintain command-level variables.
- Vertical Format Unit — Edit or create the Vertical Format Unit (VFU).
- Video — Display information concerning specified aspects of the system.
- VISION — Create, format, and maintain display forms.
- Walk Subtree — Execute a command line in a specified directory and in all subordinate directories; print (on the error-out file) the pathname of every directory referenced.
- Where — Display the full pathname of a file (found by using currently defined search rules).

Hardware Simulators

The SSIP and DSIP (single- and double-precision scientific instruction processors) provide software simulation of:

- Floating-point instructions (add, subtract, multiply, divide, compare, load, store, swap, and negate) that are generated by the Advanced FORTRAN compiler or the Macro-Assembly Program.
- Floating-point branch instructions (branch on bit settings of scientific indicator register or scientific accumulator values).

The Commercial Simulator provides software simulation of commercial instructions (commercially-oriented calculations and operations) that are generated by the Advanced COBOL compiler, RPG compiler, or Macro-Assembly Program.

System Maintenance Facility

The System Maintenance Facility acts as an aid in testing and maintaining the DPS 6 system. The facility includes the following utilities:

- Error Logging
- Communications Status and Statistics
- Communications Trase
- Scope
- Dump Communications Processor (DCP)
- Unplug and Replug
- Find.

The Error Logging utility collects memory and/or hardware statistics for selected peripheral devices.

The Communications Status and Statistics utility initiates, displays, and terminates the collection of software and hardware status and statistics for the communications subsystem.

The Communications Trase utility documents the communications subsystem activities for specified communications lines.

The Scope utility displays specified areas of main memory and of the Random Access Memory (RAM) of the communications processor on a CRT screen.

The Dump Communications Processor (DCP) utility generates a printout of the formatted contents of the communications processor.

The Unplug and Replug utilities logically enable/disable specified channel(s) from/for use by the Executive.

The Find utility locates the load addresses, in memory, of specified character strings.

For a complete description of these utilities, see the *System Maintenance Facility Administrator's Guide*.

Display Formatting and Control Software

Honeywell-supplied software package is available for forms definition and control. This software package is supplied with the Executive and can be configured as part of your system at system building time.

The software includes a VISION utility that enables you to create forms interactively or in batch mode; subsequently, you can modify existing forms without recompiling the programs that use the forms. The capabilities of this package are available to Assembly language programmers. See the *VISION Reference Manual* for additional information.

ADDITIONAL SOFTWARE

The following software is available in addition to the standard Executive software.

Screen Editor

The Screen Editor (also referred to as SCORPEO) is a full screen, interactive text editing and documentation tool. You can manipulate full screens of data, making text editing faster and simpler by using the features of a video display terminal. Screen Editor functionality is described in the *Application Developer's Guide*.

Transaction Control Language Compiler

The Transaction Control Language Compiler (TCLC) processes Transaction Control Language (TCL) source language program statements and produces a Transaction Descriptor (TD) and a diagnostic listing. The TCLC is described in the *Transaction Control Language Facility* manual.

User Productivity Facility

The User Productivity Facility (UPF) offers a menu-driven interface for the execution of system commands and user-written programs. Its design reflects a simplified environment in which to use the Executive.

Most commands can be invoked from and executed within the UPF. You can manipulate forms and menus rather than enter command lines; the Menu Processor builds and executes command lines from the data entered on forms.

For a detailed description of the UPF, see the *Menu Management/ Maintenance Guide.*

Sort/Merge

Sort and Merge are invoked by separate commands. Sort may also be called from a COBOL, FORTRAN, or Assembly language program. The Sort program arranges records of a file in an order based on the values you specify for record key fields. Merge combines the records of up to six sequentially ordered input files on the basis of record key values. Up to 16 key fields can be specified, with values to be arranged in ascending or descending order according to the ASCII collating sequence. The data type of a key field can be character string, signed binary, packed decimal, or signed/unsigned decimal. Sort/Merge options include record selection, redefinition or rearrangement of record contents, and deletion of duplicate records. See the *Sort/Merge* manual for a detailed description of these capabilities.

Advanced Assembler

The Advanced Assembler is available when you program in Assembly language.

Assembly language source statements of a source unit are translated into text of a relocatable object unit and, optionally, a cross-reference listing indicating symbol usage is produced. The Advanced Assembler is described in the *Assembly Language (MAP) Reference* manual.*

An Assembly language source program can include calls to system service macro call routines. Programs that are to include such macro calls must first use the Advanced Assembler. The calls are replaced by assembly source routines. The Advanced Assembler language statements are described in the *Assembly Language (MAP) Reference* manual.

*Honeywell-supplied Assembly language macro calls that provide the Assembly language programmer access to system services are described in the *System Programmer's Guide — Volume II.*

Advanced COBOL Compiler

The Advanced COBOL Compiler translates source statements of a source unit into text of a relocatable object unit. Advanced COBOL supports features based on the 1974 American National Standard. It provides full segmentation, enhanced data description and arithmetic facilities, greater I/O processing capabilities, and additional verbs (ALTER, SORT, STRING, SEARCH USE). The Advanced COBOL language statements are described in the *Advanced COBOL Reference* manual.

The Advanced COBOL Compiler also supports Reentrant Advanced COBOL. This is a sharable compiler which allows multiple users to simultaneously access a single copy of the compiler in memory. See the *Advanced COBOL Reference* manual for a description of Reentrant Advanced COBOL.

Advanced FORTRAN Compiler

Advanced FORTRAN is based on the American National Institute Programming Language standard commonly known as FORTRAN 77. In addition to fully implementing this standard, Advanced FORTRAN contains extensions which further increase its utility (although use of the extensions would make the resulting program nonconforming). The Advanced FORTRAN language statements are described in the Advanced FORTRAN Reference manual.

Pascal Compiler/System

The Pascal Compiler/System is an optimizing compiler that supports the capabilities of the International Standards Organization (ISO) Pascal, plus a set of extensions for ISO support and interfacing with Assembly language or FORTRAN routines. A high-level interactive debugger, and a profiler which monitors program execution and reports the frequency of execution of each line of code, are provided as development aids. The Pascal Compiler/System is described in the *Pascal User's Guide*.

RPG-II Compiler

The RPG-II compiler translates RPG-II source statements of a source unit into a set of object units consisting of a root, or a root plus multiple overlays. The compiler also produces a file containing Linker directives; user-written Linker directives are thus unnecessary. When the Command Processor is invoked to process the statements in this

file, it invokes the Linker and supplies it with Linker directives necessary to create an executable bound unit. The compiler supports an RPG-II language comparable to that in current industry-wide use. Significant features include: look-ahead, control levels and matching fields on input; table and array processing; forms alignment; and editing, detail, and total time functions on output. The compiler generates commercial instruction code. The RPG-II language is described in the *RPG-II Reference* manual.

BASIC Interpreter/Compiler

The BASIC Interpreter/Compiler provides an easy-to-use and easy-to-learn programming language. The small number of powerful and readily understood BASIC statements and commands provide a simple means of problem solving. A BASIC program can be created at a terminal keyboard. You can obtain BASIC as just an interpreter or as an interpreter/compiler. The BASIC Interpreter/Compiler is described in the *BASIC Reference* manual.

Transaction Control Language Facility

The Transaction Control Language Facility (TCLF) includes a Transaction Control Language Compiler (TCLC) and a Transaction Control Language Processor (TCLP).

The Transaction Control Language Processor (TCLP) is a task of a task group spawned for each terminal that performs transaction processing. The TCLP performs certain control functions before calling the appropriate transaction descriptor which directs transaction functions. The Transaction Control Language Facility (TCLF) is described in the *Transaction Control Language Facility* manual.

Remote Batch Facility/66

The Remote Batch Facility/66 (RBF/66) is a software package enabling DPS 6 hardware to be used in a remote batch processing environment with DPS 8/Level 66 host processing systems. Remotely located DPS 6 peripheral devices can enter jobs into and receive output from one or more (up to 16) host processors.

RBF/66 works in conjunction with a host processor and a Front-End Network Processor (FNP), operating under control of General Remote Terminal Supervisor (GRTS) or Network Processing Supervisor (NPS) software. RBF supports multiple communications lines (dedicated, switched, or a mixture of dedicated and switched) to the host processors.

RBF/66 operates under control of the GCOS 6 system. Remote batch and GCOS 6 local processing functions that are independent of the host processor can be performed concurrently, provided adequate resources (i.e., memory, peripheral devices) are available. Remote Batch Terminal (RBT) software is run as a task executing in a unique task group and uses the resources reserved for that task group.

Each RBT permits the batch entry of remote jobs destined for processing in a host system and receives output from those jobs. Jobs to be processed are submitted in ASCII files, on cards read directly by the RBT, or on cards spooled to a file and read in GBCD code. Commands entered from the RBT console control remote batch operations.

Refer to the *Remote Batch Facility/66 User's Guide* for additional information.

Data Entry Facility-II (DEF-II)

DEF-II provides a multistation, CRT-oriented, source data collection function for subsequent processing by a host computer. DEF-II functionality embodies established data entry concepts in a menu-driven approach, making it easy to specialize and run procedures. The DEF-II facility supports up to 32 asynchronous terminals and as many line or serial printers as the installation requires. DEF-II functionality is described in the *Data Entry Facility-II User's Guide.*

File Transmission Between DPS 6 and Other Computers

File transmission between the DPS 6 and a variety of other processors (DPS 6, DPS 4/Level 62, and DPS 8/Level 66, and non-Honeywell processors) is implemented through two utility programs: TRAN and TRANB. Each of these utility programs permits files to be transmitted to or received from one or more remotely located processors. Each processor must incorporate appropriate file transmission software.

The TRAN utility program provides for file transmission between the DPS 6 and other DPS 6 processors or one or more DPS 8/Level 66 host processors. TRAN transmits files in ASCII format, using the polled visual display terminal protocol.

A second utility program, TRANB, enables file transmission between the DPS 6 and non-Honeywell processors that use the BSC Transport Facility protocol; TRANB converts ASCII data in DPS 6 files into EBCDIC 80-character records for transmission, and converts the received EBCDIC records into ASCII format.

Each file transmission program is invoked by a command (either entered on a terminal or included within your command file). The command name corresponds to the name of the utility program invoked: TRAN or TRANB. Each program provides error analysis. For TRAN, an initiate/accept dialog between file transmission software in each of the two processors determines whether a file can be transferred. A restart capability is available when transmission between two DPS 6 processors or between a DPS 6 and a DPS 8/ Level 66 processor is aborted due to failure in the transmission line. File transfer can be restarted at any record in the file which is being transferred at the time of the failure.

Multiple file transmissions between the DPS 6 and one or more processors can occur concurrently. Each file transfer takes place over a different communications line. An argument in the command that invokes the file transmission program specifies whether a specific communications line is to be connected or disconnected after a file transfer. As long as the line is connected, file transfers can be made by issuing the appropriate command for each transfer (TRAN or TRANB).

Refer to the appropriate file transmission manual for details on the use of the file transmission utility program to transmit files to a specific processor.

2780/3780 Workstation Facility

The 2780/3780 Workstation Facility allows a DPS 6 to communicate with a host system via 2780/3780 binary synchronous (BSC) line protocol. Batch jobs can be submitted to the host system and output directed back to the DPS 6. The following capabilities are provided:

- Line printer horizontal format control
- Automatic restart
- Dual communications interface
- Auto answer (dial-up operation only)
- Multiple record transmission
- Error reporting and retransmission.

In addition to the previsouly specified capabilities, the 3780 operational mode provides the following capabilities:

- Space compression/expansion
- Conversion mode
- Automatic disconnect.

The 2780/3780 Workstation Facility is described in the *2780/3780 Workstation Facility User's Guide*.

HASP Workstation Facility

The HASP Workstation Facility enables a DPS 6 system to perform functions of a HASP multi-leaving workstation when communicating with a host system. The following capabilities are provided:

- BSC multi-leaving protocol
- EBCDIC transparency
- Data compression/expansion
- Switched or dedicated terminal communication facilities.

Refer to the *HASP Workstation Facility User's Guide* for additional information.

Programmable Facility/3271 (PF/3271)

The Programmable Facility/3271 (PF/3271) enables an appropriately configured DPS 6 system to perform functions of a host system 3271 terminal cluster. Communication with the host system is performed by means of a multipoint, polled 3271 BSC line protocol. PF/3271 is described in the *Programmable Facility/3271 User's Guide*.

Section 2
SOFTWARE DOCUMENTATION SUMMARY

The manuals described below support MOD 400 Release 3.1 software. A synopsis of each manual in the set and procedures for using the manuals effectively are given.

SYNOPSES OF MANUALS

The manuals described in these synopses are identified by the first four characters of the publication number. To ascertain the edition of the manual that supports the software currently in use at an installation, consult the software/manual matrix in Section 4.

- *Interactive Entry Facility-II User's Guide* (CG90) — Describes how IEF-II is used to establish interactive communications between a DPS 6 system and a DPS 7/Level 64 host over a polled VIP line.
- *MOD 400 C User's Guide* (CW35) — Describes the differences between "standard" C and MOD 400 implementation of the C language. Includes complete information on MOD 400 C routines and library functions.
- *Guide to Software Documentation* (CZ01) — Provides brief synopses of the manuals included in the the manual set, software/manual matrix, suggestions (by audience level) for using the manual set effectively, and a master index using major headings from each manual.
- *System Building and Administration* (CZ02) — Describes the system building and startup procedures for the Executive including: the Install facility, an interactive system building program, user registration, the software packages for distributed processing (as necessary), configuration directives, system disk layout, system overlays, minimum system hardware and configuration requirements for program preparation, and startup halts.

- *System Concepts* (CZ03) — Describes the features and facilities specific to the system. Includes conceptual information on Operator Interface Manager (OIM), swap pool, time slicing, ease-of-use functionality, and an outline of all components available. Discussion of execution environment including descriptions of task groups and tasks, memory pools, and bound units.
- *System User's Guide* (CZ04) — Describes the operating procedures from the operator and user terminals, procedural information on the dual-purpose operator terminal, Subsystem Switcher, error logging, creating EC files, establishing deferred processing, batch processing, buffer pools, line speed verification, and restarting after system failure.
- *System Programmer's Guide (Volume I)* (CZ05) — Describes Executive function system control, text editor, File System, display processing and communications, data structures and their generation, device drivers, Line Protocol Handlers (LPHs), multi- and single-user debugging, linking, patching, dumps and their interpretation, trap handling.
- *System Programmer's Guide (Volume II)* (CZ06) — Describes system service macro calls.
- *Programmer's Pocket Guide* (CZ07) — Summarizes commonly-used commands, directives, and operating procedures.
- *System Maintenance Facility Administrator's Guide* (CZ09) — Describes administrative system maintenance utilities such as Error Logging, Communications Status and Statistics, Communications Trase, Scope, Dump Communications Processor (DCP), and Find.
- *Menu Management/Maintenance Guide* (CZ10) — Provides information on creation, modification, or deletion of menus. Describes how to use the Menu Print utility, the User Productivity Facility, programmatic interfaces, and user registration for the User Productivity Facility.
- *Application Developer's Guide* (CZ15) — Describes system usage for application programmers. Presents a detailed description of system access procedures, file conventions, screen and line editors, Linker procedures, Multi-User Debugger (symbolic mode), requesting and using memory dumps, Patch utility, as well as compile, link, and execute procedures for COBOL, BASIC, and FORTRAN programs.

- *System Messages* (CZ16) — Describes messages reported by system components (descriptions contain causes, effects, and corrective actions); how to use the Message Reporter to retrieve and display prepared messages stored in a disk-based library file; procedures for updating the Message Library, tailoring the library (specifying message chains); national language support; standard messages.
- *Commands* (CZ17) — Describes command line format (operator and user commands), task interrupt break function, activating an application program, and extending the command set. Describes, in detail, commands and active functions, utilities, and language processor execution. Describes additional command line arguments, terminal characteristics at login, and File Change directives; ASCII and EBCDIC character sets.
- *Sort/Merge* (CZ18) — Describes the Sort and Merge program features, command and statement formats, and report contents. Includes file and memory requirements, operating procedures, sample program, using Sort as a subroutine, debug mode execution, and ASCII collating sequence.
- *Data File Organizations and Formats* (CZ19) — Describes disk and magnetic tape data file organizations; disk and magnetic tape record, file, and volume formats; journal file format; file and volume headers; ASCII and EBCDIC character set.
- *Transaction Control Language Facility* (CZ20) — Describes the use of the Transaction Control Language (TCL) in writing transaction processing applications. Presents a detailed description of the TCL. Provides rules for writing Assembly language and COBOL programs to function with the TCL programs. Describes the procedures involved in preparing a system to run transaction processing programs under TCLF. Explains the transaction processing operating modes.
- *Display Formatting and Control* (CZ21) — Describes the programmatic interface for utilizing terminal display forms. Provides a language-independent description as well as Assembly language macro calls, Advanced COBOL, BASIC, FORTRAN, and Pascal calls that manipulate forms. Also includes a description of VFORMS.

- *VISION Reference Manual* (CZ22) — Describes form creation and maintenance using VISION for both batch and interactive processing. Includes description of optional output for VISION-created forms and utilities for viewing, renaming, deleting, printing, testing, copying, and listing forms. Also includes instructions on how to provide table lookups for user input verification.
- *Advanced COBOL Reference* (CZ34) — Describes general features of Advanced COBOL, language elements and syntax, and the divisions of a COBOL program. Presents format descriptions of all Advanced COBOL statements (with many programming examples). Contains a COBOL glossary and reserved word list, ASCII and EBCDIC collating sequences, the FIPS LEVELING feature of COBOL, and compiler diagnostics. Describes the types of files handled, the use of the Advanced COBOL compiler, and COBOL runtime considerations.
- *Advanced COBOL Quick Reference Guide* (CZ35) — Summarizes Advanced COBOL syntax and notational conventions. Briefly describes commonly used expressions. Gives identifier and condition formats, and I/O file structure and status keys. Lists special registers, system names, reserved words, collating sequences, and other reference information.
- *BASIC Reference* (CZ36) — Describes the form and function of BASIC statements as well as the capabilities of the string, arithmetic, matrix, and file operations supported by the language. Describes the procedures used to initiate program execution, save a BASIC program on a secondary storage device, list a program, and perform other general programming functions.
- *Basic Quick Reference Guide* (CZ37) — Summarizes all statements and commands and their formats. Lists the BASIC reserved words, system functions, special character set, notational conventions, ASCII-to-decimal conversion table, and error codes and messages.
- *Assembly Language (MAP) Reference* (CZ38) — Describes all instructions, instruction formats, control statements, types of data handled, and macro language statements. Describes scientific and commercial instructions. Rules for writing reentrant code. Describes Advanced Assembler instructions, formats, and usage.
- *Advanced FORTRAN Reference* (CZ39) — Describes the Advanced FORTRAN language including terms and concepts, source program formats, data types and constants, control statements, and expressions.

- *Pascal User's Guide* (CZ40) — Describes language specification and compiler operation. Explains use of library procedures, I/O extensions, Profiler and Format utilities, and the Debugger. Gives information about program linking and compiler and runtime errors. Includes programming examples.
- *RPG-II Reference* (CZ41) — Description of RPG-II data processing including: a primer on RPG-II programming, RPG-II specification form entries, description and use of the RPG-II fixed logic cycle, and operating instructions with sample programs.
- *DM6 I-D-S/II Programmer's Guide* (CZ52) — Describes I-D-S/II software from the perspective of the application programmer who uses the data base. Explains I-D-S/II system concepts and data definition and manipulation languages at the subschema level. Includes programming examples.
- *DM6 I-D-S/II Data Base Administrator's Guide* (CZ53) — Describes the concepts and operation of I-D-S/II software for persons responsible for the design, installation, control, and maintenance of the data base. (Intended to be used in conjunction with the *I-D-S/II Data Base Programmer's Guide*.)
- *DM6 I-D-S/II Reference Card* (CZ54) — Outlines language syntax, formats for translation, validation, and utilizing commands, and lists other reference material.
- *Level 6 to Level 6 File Transmission Facility User's Guide* (CZ59) — Describes the process of transmissing data between DPS 6 computers. Includes instructions for activating and initiating file transmission as well as a description of the commands and arguments needed to transfer data.
- *Level 6 to Level 66 File Transmission Facility User's Guide* (CZ60) — Describes the operation of the File Transmission Facility used with DPS 6 and DPS 8/Level 66 computer systems. Includes a discussion of the internal message exchange and interaction during the transmission of files between the two systems as well as a listing of file transmission messages, and a sample DPS 8/Level 66 statistical report.
- *Level 6 to Level 62 File Transmission Facility User's Guide* (CZ61) — Describes the File Transmission Facility for transmitting data between the DPS 6 and DPS 4/Level 62 systems. Includes a detailed description of both the DPS 6 and DPS 4/Level 62 aspects of file transmission as well as a complete listing of error messages and diagnostics. ASCII/EBCDIC translation table.

- *BSC Transport Facility User's Guide* (CZ62) — Describes the File Transmission Facility for transmitting data between the DPS 6 and host computer systems. Includes a detailed description of the file transmission operation as well as a listing of file transmission messages. ASCII and EBCDIC character sets.
- *2780/3780 Workstation Facility User's Guide* (CZ63) — Describes the 2780/3780 Workstation Facility (WF) used for either transmitting batch input to, or receiving batch output from a host system that supports a BSC 2780/3780 line protocol. Includes a detailed description of commands and directives entered at the user terminal as well as specific examples of 2780/3780 WF interfacing with a host system. Describes the error messages generated by the 2780/3780 WF and the ASCII and EBCDIC character sets.
- *HASP Workstation Facility User's Guide* (CZ64) — Describes the HASP Workstation Facility for transmitting data through a link between a DPS 6 and a host system or between two DPS 6 systems. Includes detailed descriptions of the HASP commands, directives, and arguments entered through a terminal.
- *Programmable Facility/3271 User's Guide* (CZ65) — Describes configuration, invocation, and termination of the Programmable Facility/3271. Describes data entry keys for the supported terminals. Discusses how to process input through COBOL or GCOS Assembly language programs.
- *Remote Batch Facility/66 User's Guide* (CZ66) — Describes the concepts and operation of the Remote Batch Facility. Explains how to establish or terminate communication with the host system and how to perform remote batch operations. Describes each remote batch console command and host software control record used to direct remote batch functions.
- *DM6 TP Development Reference* (CZ71) — Includes conceptual description of the DM6 Transaction Processor (DM6 TP), language requirements for generating a DM6 TP application, and instructions for writing message-mode transaction processing routines in COBOL.
- *DM6 TP Application User's Guide* (CZ72) — Provides instructions on installing and operating a DM6 Transaction Processor application. Includes instructions for building and initializing a DM6 TP application. Describes DM6 TP operator functions, including special DM6 TP commands. Describes the role of the terminal user in accessing DM6 TP and entering transactions.

- *DM6 TP Forms Processing* (CZ73) — Describes the language requirements for creating screen forms and gives instructions for preparing transaction processing routines that operate in forms mode.
- *GCOS 6 Data Base Augmented Real-Time Tracing System User's Guide* (CZ74) — Describes the commands, directives, and procedures for using the Data Base Augmented Real-Time Tracing System (DARTS).
- *MOD 400 TTY Emulator User's Guide* (CG20) — Describes configuration, operating, and administrative information on the TTY emulator, which permits users to connect terminals to remote host computers over low-cost communications lines.
- *Disk-Based Data Entry Facility-II User's Guide* (HC12) — Describes the concepts and operation of the Data Entry Facility-II (DEF-II), a data entry package used with DPS 6 computer systems. Presents detailed descriptions of the terminal devices supported by the facility; the creation, maintenance, and use of screen forms; the configuration of the Executive for the DEF-II facility; and the files and programming interfaces used by the facility.
- *Disk-Based Data Entry Facility-II Operator's Quick Reference Guide* (HC13) — Describes the front and back control panels of the terminals, the keyboard controls, and the menu screens. Contains an annotated list of commonly-occurring error messages.

The following documents describe the capability of the particular file transmission facility, including file organizations supported, code sets, line protocols, and equipment requirements as well as operating information:

- *Level 6 to Level 6 File Transmission Facility User's Guide* (CZ59)
- *Level 6 to Level 66 File Transmission Facility User's Guide* (CZ60)
- *Level 6 to Level 62 File Transmission Facility User's Guide* (CZ61)
- *BSC Transport Facility User's Guide* (CZ62)
- *Remote Batch Facility/66 User's Guide* (CZ66)

The following documents describe the capabilities of the particular workstation emulation facility, including an overview of the facility, the commands and parameter strings to be entered at the workstation, and programming information required to interface with the host system:

- *2780/3780 Workstation Facility User's Guide* (CZ63)
- *HASP Workstation Facility User's Guide* (CZ64)

The following publications contain supplementary information.

- *Communications Handbook* (AT97) — Describes the MLCP and the Communications-Pac interface for use in creating applications for a DPS 6 hardware environment that includes an MLCP and one or more Communications-Pacs.
- *Minicomputer Systems Handbook* (CC71) — Describes hardware models, central processor, system and central processor architecture, instruction set and addressing modes, instruction timing, and control panel operating procedures.
- *MOD 400/600 Online Test & Verification Operator's Guide* (CD18) — Describes the procedures necessary to execute the Test & Verification (T&V) programs that permit the user to verify the condition of peripheral devices without degrading system performance.
- *DPS 6/Level 6 Programmer's Pocket Guide* (CU75) — Summarizes the complete set of DPS 6 instructions.

Section 3
HOW TO USE THE DOCUMENTATION SET

You look to the documentation set for many different kinds of information related to various functions. Ways to make effective use of the manuals are suggested below. The user classifications chosen for this discussion are arbitrary: at small installations, one person may perform many functions; at large installations, the diversity of functions may require many people playing additional or different roles. Information is tailored to the following user classifications:

- System Builder — Designs and builds the system according to the requirements of the installation
- System Programmer — Writes system programs and debugs the system
- Novice User — Not familiar with the Executive; may or may not be an experienced programmer
- Experienced Applications Programmer — Writes and executes applications programs
- Operator — Operates the system and maintains the peripheral devices
- Distributed Systems User — Employs the DPS 6 in a distributed processing environment.

SYSTEM BUILDER'S GUIDE TO MANUALS

The suggested sequence for using the manuals for system building is shown in Figure 3-1. As a system builder, you may wish to become familiar with the software by carefully reading this Guide.

Before designing the system configuration for installation, read the conceptual material in the *System Concepts* manual. If you plan to use the editors to enter data into the system, refer to the *Application Developer's Guide* and the *System Programmer's Guide — Volume I* for editor directives.

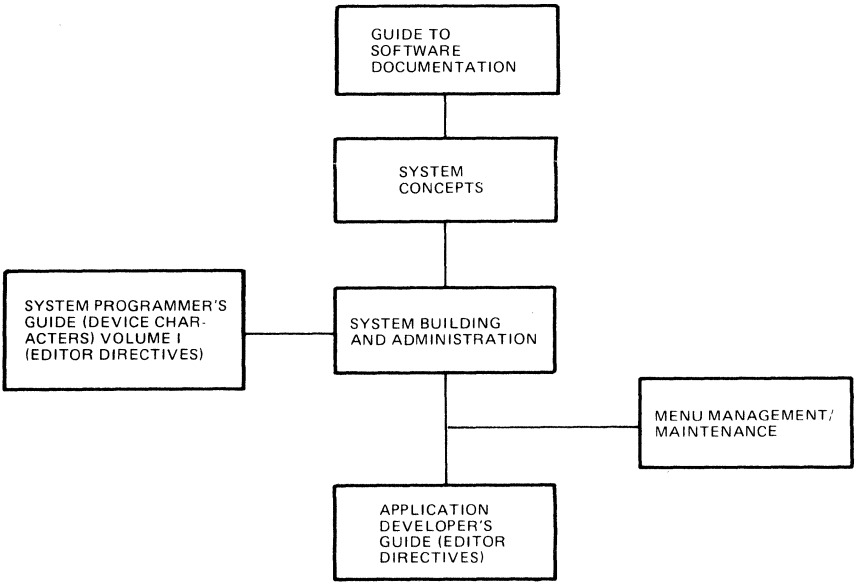

Figure 3-1. System Builder's Guide to Manuals

The primary manual for the builder is the *System Building and Administration* manual, which provides information on starting up the initial system, directives for building the Executive, and the optional procedures for building the system interactively.

If you want to define user roles or modify menus or messages for the User Productivity Facility (UPF), see the *Menu Management/ Maintenance Guide*.

SYSTEM PROGRAMMER'S GUIDE TO MANUALS

Figure 3-2 illustrates manuals of particular interest if you are a system programmer. Before performing any system functions, you may wish to become familiar with the system software by thoroughly reading this guide as well as the *System Concepts* manual.

If you plan to write additional system software code for your installation, refer to the *Assembly Language (MAP) Reference* manual and the *System Programmer's Guide — Volumes I and II*. To control execution of new system programs, you can use commands from the *Commands* manual.

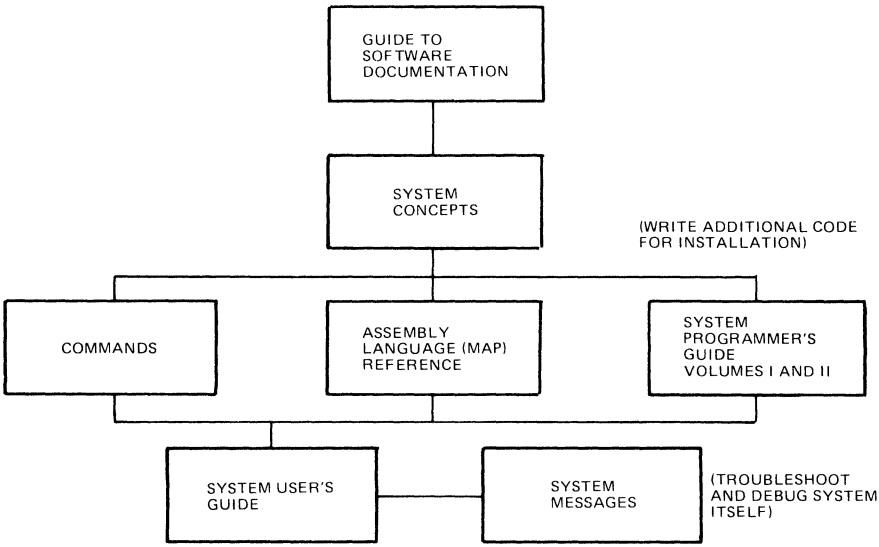

Figure 3-2. System Programmer's Guide to Manuals

If you are troubleshooting or debugging the system (as opposed to an application), use the *System Programmer's Guide — Volumes I* and *II* which contain Debug and Patch descriptions and information on interpreting memory dumps. Error messages are given in the *System Messages* manual.

NOVICE USER'S GUIDE TO MANUALS

If you are a beginning user of the Executive, you can use the *System User's Guide* for step-by-step instructions in performing selected procedures. The manuals shown in Figure 3-3 contain additional information on using the software. Read this guide as well as the *System Concepts* manual for descriptions of the software.

Manuals you will need for processing include the *Commands* manual, *System Messages* manual (for error messages), *Application Developer's Guide* and *System Programmer's Guide — Volume I* (for Editor directives), *System User's Guide* (for Linker, Patch, and Debug directives), and the *Programmer's Pocket Guide* (for summaries of commonly used commands and directives). When executing a program in any of the languages supported by the system, refer to the appropriate language reference manual.

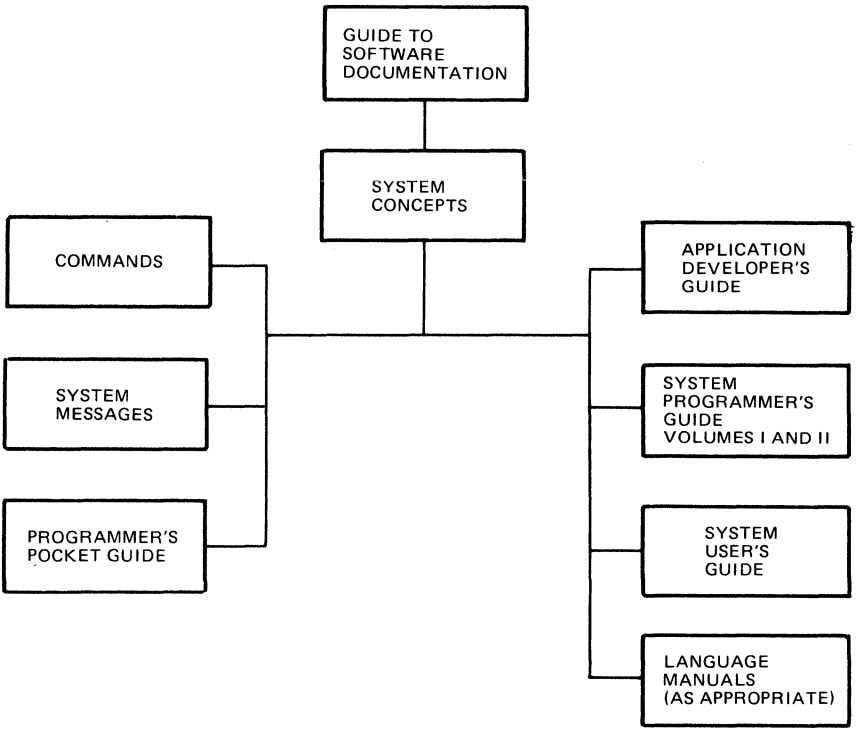

Figure 3-3. Novice User's Guide to Manuals

APPLICATION DEVELOPER'S GUIDE TO MANUALS

If you are an experienced applications programmer, refer to Figure 3-4 for suggestions on the use of manuals in developing and running applications. To familiarize yourself with the system software and operation, read this guide as well as the *System Concepts* manual.

The *Application Developer's Guide* contains editor directives to create and update an application language source unit. For each of the languages, the appropriate language reference manual contains the description of the language statements. The macro calls used in Assembly language programs are described in the *System Programmer's Guide — Volume II.*

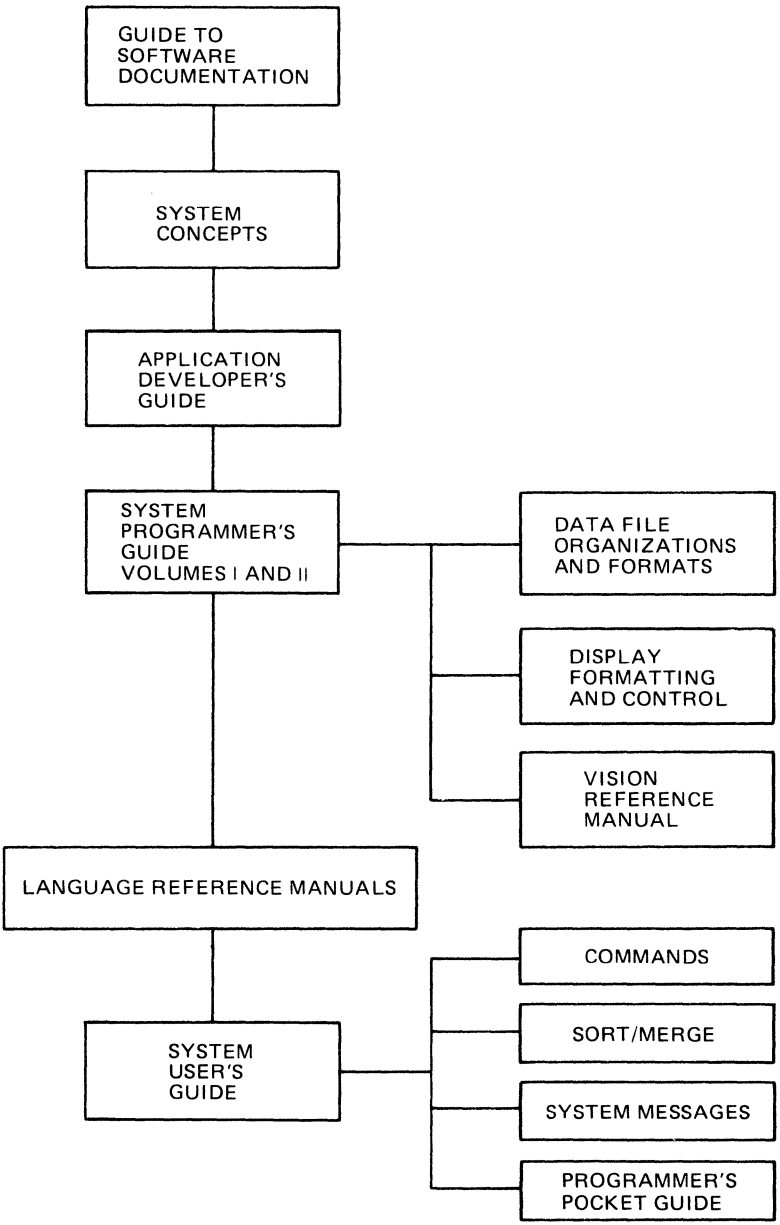

Figure 3-4. Application Developer's Guide to Manuals

To obtain more control over the execution of the program or to utilize the system facilities more completely or effectively, use the commands, including utility program commands, described in the *Commands* manual. The Patch, Debug, and dump utilities are described in the *System User's Guide*. The Sort/Merge utility programs are described in the *Sort/Merge* manual. Error messages and return status codes are listed in the *System Messages* manual. The *Programmer's Pocket Guide* summarizes commonly used commands, directives, system messages, and operating procedures.

OPERATOR'S GUIDE TO MANUALS

Specific operator job functions must be determined by each installation. A large system might have a person assigned as an operator, a small system might have programmers also act as operators. If you are to perform operator functions, refer to the manuals shown in Figure 3-5.

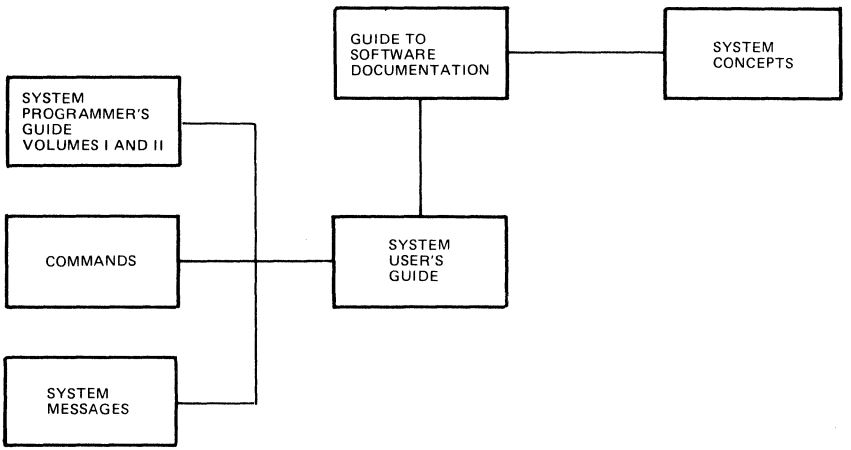

Figure 3-5. Operator's Guide to Manuals

The *System User's Guide* indicates those system procedures performed by the operator, and the *Commands* manual describes operator commands used in system operation. Prior to reading the *System User's Guide*, you may wish to become familiar with the software and system concepts by reading this guide as well as the *System Concepts* manual, respectively. To run utilities, use the commands described in the *Commands* manual. Error messages are listed in the *System Messages* manual.

GUIDE FOR USING MANUALS IN A DISTRIBUTED PROCESSING ENVIRONMENT

GCOS 6 supports the use of DPS 6 in a distributed processing environment. Using Honeywell-supplied software packages, processing capability can be assigned to sites remote from the host computer system. Other software programs permit files to be transmitted to and received from remotely located processors. Additionally, software is available to develop links with non-DPS 6 host processors and to distribute this total processing load between the host and DPS 6.

Honeywell software packages and corresponding reference manuals are described in Table 3-1.

Table 3-1. Guide for Using Manuals in a Distributed Processing Environment

Software Package	Manual
Remote Batch Facility/66	*Remote Batch Facility/66 User's Guide*
Data Entry Facility-II	*Disk-Based Data Entry Facility-II User's Guide*
	Disk-Based Data Entry Facility-II Operator's Quick Reference Guide
File Transfer Facility — Honeywell Host	*Level 6 to Level 6 File Transmission Facility User's Guide*
	Level 6 to Level 66 File Transmission Facility User's Guide
	Level 6 to Level 62 File Transmission Facility User's Guide
File Transfer Facility — Non-Honeywell Host	*BSC Transport Facility User's Guide*
2780/3780 Workstation Facility	*2780/3780 Workstation Facility User's Guide*
HASP Workstation Facility	*HASP Workstation Facility User's Guide*
Programmable Facility/3271	*Programmable Facility/3271 User's Guide*

Section 4
SOFTWARE/MANUAL MATRIX

Information in this section is contained in three tables; they contain the following release-specific information:

Table 4-1 — Release 3.1
Table 4-2 — Release 3.0
Table 4-3 — Release 2.1

Software components are available from Honeywell Software Distribution. Customer accounts should order software through their local sales representative.

Software reference manuals are obtained by submitting a Publications Order Form and/or company purchase order to the following address:

Honeywell Information Systems Inc.
47 Harvard Street
Westwood, MA 02090

Attn: Publications Services

The Publications Distribution Center also provides a HOTLINE service for orders that must be filled immediately. For HOTLINE service, call (617) 392-5213.

Software reference manuals are periodically updated to support enhancements and additions to the software. The Publications Distribution Center can isolate specific editions of a publication only when supplied with the order numbers listed in Tables 4-1 through 4-3.

To obtain the base manual and all listed addenda, enter the order number on the Publications Order Form. For example, to obtain the *Assembly Language (MAP) Reference* manual, enter Order Number CZ38-00.

The following tables contain no information relative to application software packages. See your Honeywell representative for information concerning the availability of application software and supporting documentation.

Table 4-1. Software/Manual Directory for Release 3.1 of MOD 400

Software Product Item	Release Number	Manual Title	Order Number
		Supporting Documentation (See Note)	
GCOS 6 MOD 400 Executive	3.1	Guide to Software Documentation	CZ01-01
		System Building and Administration	CZ02-01
		System Concepts	CZ03-00B
		System User's Guide	CZ04-00A
		System Programmer's Guide (Volume I)	CZ05-01
		System Programmer's Guide (Volume II)	CZ06-01
		Programmer's Pocket Guide	CZ07-01
		System Maintenance Facility Administrator's Guide	CZ09-01
		System Messages	CZ16-00A
		Commands	CZ17-01
		Data File Organizations and Formats	CZ19-00A
		Display Formatting and Control	CZ21-01
User Productivity Facility (UPF)	2.0	Menu Management/ Maintenance Guide	CZ10-01
Screen Editor	1.1	Application Developer's Guide	CZ15-01
Sort/Merge	4.3	Sort/Merge	CZ18-00
Transaction Control Language Facility	2.1	Transaction Control Language Facility	CZ20-00A

Table 4-1 (cont). Software/Manual Directory for Release 3.1 of MOD 400

Software Product Item	Release Number	Manual Title	Order Number
		Supporting Documentation (See Note)	
VISION	1.0	VISION Reference Manual	CZ22-00
Advanced COBOL	4.0	Advanced COBOL Reference	CZ34-00A
		Advanced COBOL Quick Reference Guide	CZ35-00
Reentrant COBOL	1.0	Advanced COBOL Reference	CZ34-00A
		Advanced COBOL Quick Reference Guide	CZ35-00
BASIC Interpreter	4.0	BASIC Reference	CZ36-00A
		BASIC Quick Reference Guide	CZ37-00
BASIC Interpreter/ Compiler	4.0	BASIC Reference	CZ36-00A
		BASIC Quick Reference Guide	CZ37-00
Advanced Assembler	1.1	Assembly Language (MAP) Reference	CZ38-00
Advanced FORTRAN	2.1	Advanced FORTRAN Reference	CZ39-00A
Pascal Compiler/System	1.1	Pascal User's Guide	CZ40-00A
RPG-II	4.0	RPG-II Reference	CZ41-00
C Compiler	1.0	C User's Guide	CW35-00
DM6 Integrated Data Storage-II (I-D-S/II)	2.1	DM6 I-D-S/II Programmer's Guide	CZ52-00
		DM6 I-D-S/II Data Base Administrator's Guide	CZ53-00
		DM6 I-D-S/II Reference Card	CZ54-00

Table 4-1 (cont). Software/Manual Directory for Release 3.1 of MOD 400

Software Product Item	Release Number	Manual Title	Order Number
Supporting Documentation (See Note)			
File Transmission Facility — Honeywell Host	3.6	Level 6 to Level 6 File Transmission Facility User's Guide	CZ59-00A
		Level 6 to Level 66 File Transmission Facility User's Guide	CZ60-00A
		Level 6 to Level 62 File Transmission Facility User's Guide	CZ61-00
File Transmission Facility — Non-Honeywell Host	2.7	BSC Transport Facility User's Guide	CZ62-00A
2780/3780 Workstation Facility	3.3	2780/3780 Workstation Facility User's Guide	CZ63-00A
HASP Workstation Facility	3.3	HASP Workstation Facility User's Guide	CZ64-00A
Programmable Facility/ 3271	2.6	Programmable Facility/ 3271 User's Guide	CZ65-01
Remote Batch Facility/ 66 (RBF/66)	4.3	Remote Batch Facility/ 66 User's Guide	CZ66-00
DM6 Transaction Processor	2.0	DM6 TP Development Reference	CZ71-01
		DM6 TP Application User's Guide	CZ72-01
		DM6 TP Forms Processing	CZ73-01
Data Base Augmented Real-Time Tracing System (DARTS)	1.1	Data Base Augmented Real-Time Tracing System User's Guide	CZ74-00A
Asynchronous Communications Facility (ACF)	2.0	Disk-Based Asynchronous Communications Facility User's Guide	GG20-00

Table 4-1 (cont). Software/Manual Directory for Release 3.1 of MOD 400

Software Product Item	Release Number	Manual Title	Order Number
		Supporting Documentation (See Note)	
Data Entry Facility-II (DEF-II)	3.0	Data Entry Facility-II User's Guide	HC12-00
		Data Entry Facility-II Operator's Quick Reference Guide	HC13-00

NOTE

A software release bulletin accompanies each software product item received from Honeywell. You should consult the software release bulletin before using the software. See your Honeywell representative if a copy of the software release bulletin is not available. Additionally, the following publications provide supplementary information: *Communications Handbook* (AT97), *Minicomputer Systems Handbook* (CC71), *DPS 6 & Level 6 Programmer's Pocket Guide* (CU75), and *MOD 400/600 Online Test and Verification Operator's Guide* (CD18). The *Honeywell Publications Catalog* (AB81) lists all publications available through Honeywell.

Table 4-2. Software/Manual Directory for Release 3.0 of MOD 400

Software Product Item	Release Number	Manual Title	Order Number
		Supporting Documentation (See Note)	
GCOS 6 MOD 400 Executive	3.0	Guide to Software Documentation	CZ01-00
		System Building and Administration	CZ02-00
		System Concepts	CZ03-00
		System User's Guide	CZ04-00
		System Programmer's Guide (Volume I)	CZ05-00
		System Programmer's Guide (Volume II)	CZ06-00
		Programmer's Pocket Guide	CZ07-00
		System Maintenance Facility Administrator's Guide	CZ09-00

Table 4-2 (cont). Software/Manual Directory for Release 3.0 of MOD 400

Software Product Item	Release Number	Manual Title	Order Number
Supporting Documentation (See Note)			
GCOS 6 MOD 400 Executive (cont)	3.0	System Messages	CZ16-00
		Commands	CZ17-00
		Data File Organizations and Formats	CZ19-00
		Display Formatting and Control	CZ21-00
User Productivity Facility (UPF)	1.0	Menu Management/ Maintenance Guide	CZ10-00
Screen Editor	1.0	Application Developer's Guide	CZ15-00
Sort/Merge	4.3	Sort/Merge	CZ18-00
Transaction Control Language Facility	2.0	Transaction Control Language Facility	CZ20-00
Advanced COBOL	4.0	Advanced COBOL Reference	CZ34-00
		Advanced COBOL Quick Reference Guide	CZ35-00
Reentrant COBOL	1.0	Advanced COBOL Reference	CZ34-00
		Advanced COBOL Quick Reference Guide	CZ35-00
BASIC Interpreter	3.0	BASIC Reference	CZ36-00
		BASIC Quick Reference Guide	CZ37-00
BASIC Interpreter/ Compiler	3.0	BASIC Reference	CZ36-00
		BASIC Quick Reference Guide	CZ37-00
Advanced Assembler	1.1	Assembly Language (MAP) Reference	CZ38-00
Advanced FORTRAN	2.0	Advanced FORTRAN Reference	CZ39-00

Table 4-2 (cont). Software/Manual Directory for Release 3.0 of MOD 400

Software Product Item	Release Number	Manual Title	Order Number
Supporting Documentation (See Note)			
Pascal Compiler/System	1.0	Pascal User's Guide	CZ40-00
RPG-II	4.0	RPG-II Reference	CZ41-00
Data Entry Facility-II (DEF-II)	2.0	Data Entry Facility-II User's Guide	CZ47-00
		Data Entry Facility-II Operator's Quick Reference Guide	CZ48-00
DM6 Integrated Data Storage-II (I-D-S/II)	2.1	DM6 I-D-S/II Programmer's Guide	CZ52-00
		DM6 I-D-S/II Data Base Administrator's Guide	CZ53-00
		DM6 I-D-S/II Reference Card	CZ54-00
File Transmission Facility — Honeywell Host	3.5	Level 6 to Level 6 File Transmission Facility User's Guide	CZ59-00
		Level 6 to Level 66 File Transmission Facility User's Guide	CZ60-00
		Level 6 to Level 62 File Transmission Facility User's Guide	CZ61-00
File Transmission Facility — Non-Honeywell Host	2.6	BSC Transport Facility User's Guide	CZ62-00
2780/3780 Workstation Facility	3.2	2780/3780 Workstation Facility User's Guide	CZ63-00
HASP Workstation Facility	3.2	HASP Workstation Facility User's Guide	CZ64-00
Programmable Facility/ 3271	2.5	Programmable Facility/ 3271 User's Guide	CZ65-00

Table 4-2 (cont). Software/Manual Directory for Release 3.0 of MOD 400

Software Product Item	Release Number	Manual Title	Order Number
		Supporting Documentation (See Note)	
Remote Batch Facility/ 66 (RBF/66)	4.2	Remote Batch Facility/ 66 User's Guide	CZ66-00
DM6 Transaction Processor	1.0	DM6 TP Development Reference	CZ71-00
		DM6 TP Application User's Guide	CZ72-00
		DM6 TP Forms Processing	CZ73-00

NOTE

A software release bulletin accompanies each software product item received from Honeywell. You should consult the software release bulletin before using the software. See your Honeywell representative if a copy of the software release bulletin is not available. Additionally, the following publications provide supplementary information: *Level 6 Communications Handbook* (AT97), *Level 6 Minicomputer Systems Handbook* (CC71), *DPS 6 & Level 6 Programmer's Pocket Guide* (CU75), and *MOD 400/600 Online Test and Verification Operator's Guide* (CD18). The *Honeywell Publications Catalog* (AB81) lists all publications available through Honeywell.

Table 4-3. Software/Manual Directory for Release 2.1 of MOD 400

Software Product Item	Release Number	Manual Title	Order Number
		Supporting Documentation (See Note)	
GCOS 6 MOD 400 Executive	2.1	GCOS 6 MOD 400 Software and Documentation Directory	CG79-01
		GCOS 6 Program Preparation	CB01-02
		Addendum A	CB01-02A
		Addendum B	CB01-02B
		Addendum C	CB01-02C
		Addendum D	CB01-02D
		Addendum E	CB01-02E

Table 4-3 (cont). Software/Manual Directory for Release 2.1 of MOD 400

Software Product Item	Release Number	Manual Title	Order Number
		Supporting Documentation (See Note 1)	
GCOS 6 MOD 400 Executive (cont)	2.1	GCOS 6 Commands	CB02-04
		Addendum A	CB02-04A
		GCOS 6 Communications Processing	CB03-03
		Addendum A	CB03-03A
		GCOS 6 Data File Organizations and Formats	CB05-04
		Addendum A	CB05-04A
		Addendum B	CB05-04B
		GCOS 6 System Messages	CB06-04
		GCOS 6 MOD 400 System Concepts	CB20-01
		Addendum A	CB20-01A
		GCOS 6 MOD 400 Program Execution and Checkout	CB21-02
		GCOS 6 MOD 400 Programmer's Guide	CB22-01
		GCOS 6 MOD 400 System Building	CB23-03
		GCOS 6 MOD 400 Operator's Guide	CB24-03
		GCOS 6 MOD 400 Programmer's Pocket Guide	CB27-03
		GCOS 6 MOD 400 Master Index	CB28-01
		Display Formatting and Control	CD46-02
Assembler and Macro Preprocessor	2.1	GCOS 6 Assembly Language Reference	CB07-01
		Addendum A	CB07-01A
		Addendum B	CB07-01B
		Addendum C	CB07-01C
		Addendum D	CB07-01D

Table 4-3 (cont). Software/Manual Directory for Release 2.1 of MOD 400

Software Product Item	Release Number	Manual Title	Order Number
Supporting Documentation (See Note 1)			
Assembler and Macro Preprocessor (cont)	2.1	GCOS 6 System Service Macro Calls	CB08-02
		Addendum A	CB08-02A
		Addendum B	CB08-02B
		Addendum C	CB08-02C
RPG	4.0	GCOS 6 RPG Reference	CB09-01
Entry-Level COBOL	2.1	GCOS 6 Entry-Level COBOL Reference	CB12-00
		Addendum A	CB12-00A
Intermediate COBOL	3.0	GCOS 6 Intermediate COBOL Reference	CB10-01
		Addendum A	CB10-01A
		Addendum B	CB10-01B
Advanced COBOL	2.0	GCOS 6 Advanced COBOL Reference	CB14-00
		Addendum A	CB14-00A
		GCOS 6 Advanced COBOL Reference Guide	CB15-01
BASIC Interpreter	1.0	GCOS 6 BASIC Reference	CB11-00
		Addendum A	CB11-00A
		GCOS 6 BASIC Quick Reference Guide	CB17-00
BASIC Interpreter/ Compiler	1.0	GCOS 6 BASIC Reference	CB11-00
		Addendum A	CB11-00A
		GCOS 6 BASIC Quick Reference Guide	CB17-00
FORTRAN	3.0	GCOS 6 FORTRAN Reference	CB13-00
		Addendum A	CB13-00A
Advanced FORTRAN	1.0	GCOS 6 Advanced FORTRAN Reference	CB18-00
		Addendum A	CB18-00A

Table 4-3 (cont). Software/Manual Directory for Release 2.1 of MOD 400

Software Product Item	Release Number	Manual Title	Order Number
		Supporting Documentation (See Note 1)	
Transaction Control Language Facility	1.0	GCOS 6 MOD 400 Transaction Control Language Facility	CG80-00
Data Entry Facility-I	3.2	Data Entry Facility-I User's Guide	CB31-02
		Data Entry Facility-I Operator's Quick Reference Guide	CB32-01
Data Entry Facility-II	1.1	Data Entry Facility-II User's Guide	CG70-00
		Addendum A	CG70-00A
		Data Entry Facility-II Operator's Quick Reference Guide	CG85-00
Remote Batch Facility/64		Remote Batch Facility/ 64 User's Guide	CF11-01
Remote Batch Facility/66	4.1	Remote Batch Facility/ 66 User's Guide	CB30-01
		Addendum A	CB30-01A
Sort/Merge	4.1	GCOS 6 Sort/Merge	CB04-01
		Addendum A	CB04-01A
		Addendum B	CB04-01B
		Addendum C	CB04-01C
		Addendum D	CB04-01D
		Addendum E	CB04-01E
File Transmission Facility — Honeywell Host	3.4	Level 6/Level 6 File Transmission Facility User's Guide	CB33-01
		Addendum A	CB33-01A
		Addendum B	CB33-01B
		Level 6/Level 66 File Transmission Facility User's Guide	CB36-02
File Transmission Facility — Non-Honeywell Host	2.4	Level 6/BSC2780/ BSC3780 File Transmission Facility User's Guide	CB38-01
		Addendum A	CB38-01A

Table 4-3 (cont). Software/Manual Directory for Release 2.1 of MOD 400

Software Product Item	Release Number	Manual Title	Order Number
Supporting Documentation (See Note 1)			
2780/3780 Workstation Facility	3.1	2780/3780 Workstation Facility User's Guide	CB40-02
HASP Workstation Facility	3.0	HASP Workstation Facility User's Guide	CB41-02
Host Resident Facility	See Note 2	Level 66 Host Resident Facility User's Guide	CB42-02
Programmable Facility/ 3271	2.3	3270 Interactive Facility User's Guide	CB48-00

NOTES

1. A software release bulletin accompanies each software product item received from Honeywell. You should consult the software release bulletin before using the software. See your Honeywell representative if a copy of the software release bulletin is not available. Additionally, the following publications provide supplementary information: *Communications Handbook* (AT97), *Minicomputer Systems Handbook* (CC71), *Writable Control Store User's Guide* (FQ41), and *MOD 400/600 Online Test and Verification Operator's Guide* (CD18). The *Honeywell Publications Catalog* (AB81) lists all publications available through Honeywell.

2. Currently-available host resident software includes: Release 3.0 of the Level 66 Host Resident Facility Program Development System, Release 3.0 of the Level 66 Host Resident Facilaity COBOL Compiler, and Release 3.0 of the Level 66 Host Resident Facility FORTRAN Compiler.

Section 5
MASTER INDEX TO MOD 400 PUBLICATIONS

The following Master Index combines, in an abbreviated form, the indexes of the individual MOD 400 Release 3.1 manuals. It does not, however, index either the quick reference guides or the *GCOS 6 MOD 400 Commands* manual. Please note that specific language statements and commands, which are included in the individual indexes of the MOD 400 publications, have generally been excluded from the Master Index.

The Master Index references only the four character base publication number of the manual in which a topic may be found. These publication numbers are listed with their corresponding manual titles in the Manual Directory at the beginning of this manual. For specific page numbers, consult the individual manual concerned.

Index entries are listed in standard dictionary order (i.e., ignoring spaces, hyphens, etc.), rather than in ASCII sequence.

A

B

C

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