CP-V F00-11

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1.0   PRODUCT DESCRIPTION

1.1   Purpose

The purpose of the F00 release of CP-V is to provide for the
distribution to the field of a major Development release,
including support for MPC tape units, multi-processor Sigma
6/7 systems, and Sigma MOS memory. Many other areas have
been enhanced, and 418 SIDR fixes are included with this
release.

1.2   Features/Areas of Enhancement

The major features of CP-V F00 and areas of development
enhancement are described below.

1.2.1   MPC tape drive support

CP-V F00 provides software support for Honeywell MPC (Micro
Programmed Controller) tape drive subsystems. MPCs may be
attached to Sigma series systems via a standard Sigma IOP,
and may be attached to Xerox 560 systems via a 560 Sigma
adapter. To each MPC (Honeywell model XTU 9310) may be
attached up to 15 tape drives of varying speeds - model 9313
operates at 125 inches per second, and model 9314 operates
at 200 inches per second. Both models can read and write at
both 800 and 1600 BPI, and are compatible at the user level
with Xerox 560 dual-density (NS) tape drives (except that
MPC tape drives cannot bootstrap 1600 BPI tapes).

MPC tape support features are selected at SYSGEN time by the
inclusion of a :DEVICE card that specified (MOD,931x,9310)
and (HANDLER,MPCTIO,MPCTCU). PASS2 will add the MPC9310
overlay (which contains the necessary MPC firmware) to the
monitor's tree structure.

Operationally, MPC tape drives function almost identically
to other types of Sigma and 560 tape drives. While the MPC
hardware does not support the "read reverse" operation, the
MPCTIO handler will simulate this operation in a fashion
transparent to the user. Programs which make use of the
M:NEWQ or M:QUE service calls to perform real-time I/O need
not be changed, as the standard 9T function codes function
identically on MPC tape drives. Real-time or
special-purpose programs accessing MPC tape drives should
not use M:IOEX or M:EXCP, or issue SIO instructions, as
there is a protocol that such requests must follow that
should be left to the standard handler (MPCTIO).
Operational differences visible to the system operator are
described in detail in the CP-V F00 Operations Reference
Manual (publication number 90 16 75). CP-V will

automatically down-load the necessary firmware at system
startup time; in case of MPC failure, the operator can
initiate the download process with a "yyndd,F" key-in. MPC
tape drives will not "run away" if a degaussed tape is
mounted, as they will halt after reading past 25 feet of
blank tape and request operator intervention.

1.2.2   Large-memory and multi-CPU Sigma 6/7s

CP-V F00 provides full support for two hardware options
designed to increase the maximum power of Sigma 6 and 7
systems.

*   Honeywell hardware option XPF 6850 may be used to
     increase the size of a Sigma 6 or 7 from the previous
     upper limit of 128 K of core memory to a new upper limit
     of 256K of Honeywell MOS memory. This option adds an
     extra bit to the physical memory addressing lines and
     memory map, and adds the LMS ("Load Memory Status")
     instruction to the Sigma 6/7 instruction set.

*   Honeywell hardware option XPF 6851 enables two or more
     Sigma 6 and/or Sigma 7 CPUs to be run in a standard
     multi-processing environment. The large-memory option
     (XPF 6850) must also be installed.

*   No major changes to SYSGEN procedure are necessary for
     large-memory or multi-CPU Sigma 6/7 systems. The (BIG)
     option may now be specified alone with (SIG7) on the
     :MON card, and the :SCPU card is permitted in Sigma 6/7
     SYSGENs.

*   Operation of a multi-CPU Sigma 6/7 system is essentially
     identical with the operation of a multi-CPU Sigma 9
     system. The CP-V F00 Operations Reference Manual
     contains descriptions of all operator procedures
     necessary for normal system operation.

1.2.3   MOS memory single-bit error detection

The single-bit correctable-error detection facility inherent
in Sigma series MOS memory (Honeywell model XPF 9850) is
supported under CP-V F00. Associated with each bank of MOS
memory is an error-detection flag, a threshold error count,
and a current error count. If a single-bit correctable
error ("SBCE") occurs in a bank whose error detection flag

is set, the system will increment the bank's current error
count and generate an entry in the system error log for
later analysis. If a bank's current error count exceeds its
threshold error count, the bank's error detection flag will
be reset, the operator will be warned, and no further errors
from that bank will be reported unless the threshold error
count is increased by the operator or system manager via the
CONTROL processor's "MOS" command.

Several areas of CP-V have been enhanced to provide SBCE
detection and reporting:

*   PASS2 will create a table called "MOSTAB" if the "(MOS)"
        option is specified on the :MON card.

*   The system initialization routines will enable the
        memory units' SBCE detection facility at boot time or
        after a power failure recovery.

*   The system fault handlers will recognize SBCEs and will
        produce a Sigma-type "Memory Parity Secondary" error-log
        record (type X'43') with no associated "MFI Primary"
        record (type X'31'). This permits ERR:FIL to correctly
        log the error without producing the "Hardware error
        detected" warning message associated with MFI primary
        records.

*   A new ELLA command "MOS" may be used to generate a
        graphic display of any SBCEs that have occurred in
        specific units or banks of memory (or in all of memory).
        The display will identify the failing boards and
        components (down to the individual IC chip). ELLA's
        "SUM" command will display the number of SBCEs reported
        in the interval specified by the "TIME" command.

*   The CONTROL processor may be used to enable and disable
        SBCE recording, to set the error threshold, and to
        display the current SBCE error count. All of these
        options may be applied to individual units of memory, to
        individual banks (sub-units), or to all of memory.

1.2.4   DEVDMP version B00

*   DEVDMP can now save data to, and restore data from,
        tapes written on Honeywell MPC tape drives. Such drives
        are specified as "XTndd" and are treated as 9-track dual
        density drives; DEVDMP will automatically down-load the
        necessary firmware into the MPC, and will detect and
        report those device errors specific to MPC tape drives.

Note that while MPC drives can read and write both 800
and 1600 BPI tapes, they can bootstrap only 800 BPI
tapes; therefore, DEVDMP tapes which must be
MPC-bootable should be written at 800 BPI only.

* If sense switch 1 is on during a RESTORE operation,
  DEVDMP will perform check-writes on all data written to
  the RAD or disk device.

* If sense switch 4 is off, an irrecoverable RAD or disk
  read error will cause a COPY operation to be aborted (as
  in A00 DEVDMP). If sense switch 4 is on, an attempt
  will be made to correct the situation by zeroing out the
  problem-causing sector and retrying the read; if the
  error persists, DEVDMP will skip over the erroring
  section of the disk (which will include the offending
  sector and several nearby sectors) and continue copying.
  DEVDMP will report (to the operator's console) the
  identity of each sector zeroed out, and will also report
  the identity of any sections of the RAD or disk that
  were skipped.

  If a persistent error occurs and DEVDMP is forced to
  zero out or skip one or more sectors of the RAD or disk
  being dumped, further CP-V recovery may be necessary
  once the unit has been repaired and the tape restored.
  If the unit in question contains only PSA (swap) space,
  CP-V should be booted from tape "under the files" to
  ensure that the monitor root and overlays are correct.
  If the unit in question contained any PFA (file) or PER
  (symbiont) space, CP-V should be booted "under the
  files" with the "I" option, and an HGP reconstruction
  should be requested; if the HGP reconstruction shows
  evidence of serious file system damage, the operator
  should use FILL to perform a Squirrel save, and should
  then perform a cold boot (with the "F" option) and
  restore the file system from the Saveall, Incremental,
  and Squirrel tapes.

* Code has been added to DEVDMP to permit it to be run as
  a standard CP-V load module to create a new DEVDMP tape
  (it cannot actually dump devices when run under CP-V).
  When run in this fashion, DEVDMP will request a standard
  CP-V tape (device type 9T, serial number "BOOT") and
  will then write itself to the tape preceded by a
  bootstrap record. A !SET or !ASSIGN command may be used
  to assign to F:BOOT DCB to another type of tape drive or
  to declare the proper tape density if desired; if the
  tape is ever to be booted on an MPC drive, it should be
  written at 800 BPI only. The resulting tape may be
  booted to load and run the real DEVDMP program.

1.2.5   Magnetic tape error recovery improvements

Recovery from magnetic tape errors has been significantly
improved; certain errors which were not being detected now
are, and severe write errors are handled with a greater
chance of successful recovery.

*   If a write error is detected while the tape is at load
     point, the normal write recovery process will not be
     performed; instead, the message "STRIP TAPE AND RETRY"
     will be output. The operator should strip off the first
     few feet of the tape (up to the existing load point
     marker) and put a new load point marker on the tape, and
     then key in "yyndd,R".

*   The tape handlers will now calculate the correct number
     of tape erasures to be performed during successive
     retries of a write error, thus improving the
     recoverability of long-record writes.

*   The handling of multiple errors that occur during write
     error recovery has been improved.

*   Errors that occur after the end-of-tape marker will now
     be handled properly.

*   The handling of device timeouts has been improved. In
     prior versions of CP-V, timeouts were handled as device
     independent conditions; since the operation that timed
     out would often have moved the tape, the normal recovery
     sequence (a "yyndd,R" key-in) would not always have
     meaningful results. In FOO, tape timeouts are passed to
     the device handler via the error path from the general
     I/O checking routine (IOSERCK). If the device handler
     can positively determine that no tape motion occurred,
     the error is passed back to IOQ to report "yyndd TIMED
     OUT" and to request operator action. Otherwise, the
     handler reports "yyndd TAPE POSITION LOST" to the
     operator and returns a TYC of 8 (irrecoverable error) to
     the user.

1.2.6   Deferred I/O

CP-V's ability to deal with faulty peripheral devices has
been significantly enhanced. In prior versions of CP-V, a
defective peripheral could cause software check 79-00s by
accepting SIOs and immediately interrupting with a fault
condition; the I/O scheduler would attempt to retry the I/O
operation and would receive another fault, thus causing

multiple I/O interrupt environments to be pushed onto the
monitor stack. In CP-V F00, the I/O scheduler is capable of
determining that too many interrupt environments have been
pushed onto the stack; in such a case it will defer issuing
any further SIOs on the offending device until the previous
interrupt environments have been pulled from the stack.
Three new DCT tables (DCT27, DCT28, and DCT29) are used to
properly manage this feature. Of greatest interest to
systems programmers and customer engineers is DCT29, which
is a halfword table containing an entry for each device
indicating the number of times that I/O startup has been
deferred for the device; any non-zero value in this table
indicates a possible hardware problem, as it is unlikely
that normal system operations will ever cause more than 9
interrupt environments to be pushed onto the stack.

1.2.7   EDIT enhancements

EDIT has been significantly enhanced in several areas,
providing both greater capabilities and greater convenience
of operation.

*   EDIT may now be used in batch. Commands are read through
    M:C. Output is written through M:DO, which may be
    assigned to a file. The user may use an !ASSIGN or !SET
    command to specify tab stops for the M:DO DCB; these tab
    stops will be used for tab expansion and compression
    during the batch edit unless overridden by an EDIT TA
    command.

*   The initial !EDIT command may be used to specify a
    command for EDIT to process. For example,
    "!EDIT XEQ SETUP" will cause EDIT to be entered; EDIT
    will then process the XEQ command as though it had been
    entered from the terminal (or from the batch stream if
    EDIT is being run in batch). This method may also be
    used to pass a command to EDIT via a properly coded
    M:LINK call that specifies the (CMD) option.

*   The GS character (usually control shift M) performs a
    function similar to that of the Line Feed character -
    that is, if an SE range was previously specified, the SE
    range will be reset to the first record after the SE
    range and the record typed in the format specified by
    the most recent RR, TC, TS, or TY command. Since the GS
    character acts as an end-of-message character and does
    not cause the terminal platen to advance, the record
    will be displayed on the same line as the EDIT prompt
    ("*"), thus permitting the user to scroll down through
    successive lines of the file without wasting paper.

* The EOT character (usually control D) performs the same function as the GS character except that the SE range is reset to the first record preceding the SE range; EOT may be used in place of the up-arrow command if desired, to save paper.

* When the SS or ST command is being used to display and edit successive lines in a file, the user may indicate "no change" by entering either a "NO" followed by a carriage return (as in previous versions of EDIT) or by entering a line consisting of a single line feed.

* EDIT's string selection, matching, and replacement routines now recognize the existence of "wild card" strings whose exact content is unimportant. Two forms of "wild card" strings exist - one form (represented by "?n") will match against any string of exactly "n" characters; the other (represented by "?") will match against any string of any length (including the zero-length, or null string). "Wild card" strings may be freely intermixed with specific strings to form complex string expressions (however, a "wild card" string in the last position of a string expression will never match with anything.) For example, the user might specify:

  *FDO-999, /DO/?/VAR/?2/Z/

  which would delete any lines between 0 and 999 that contained the string "DO", possibly followed by some unimportant characters, followed by the string "VAR", immediately followed by two unimportant characters, followed by a "Z". Each time EDIT matches a "wild card" against a real string, it remembers the content of the string that caused the match. If the "?" or "?n" constructs are used on the right side of a string substitution operator (S, F, P, O, or E), EDIT will use the value of the remembered string in place of the "?" or "?n" - specifying "?n" will retrieve the next "n" characters of the string, and specifying "?" will retrieve the remainder of the string and will reset the string back to the beginning. For example: the command

  *SE; 0/AB/?3/CD/S/A/?1/B/?1/C/?/D/?

  would change all occurrences of the string "ABxyzCD" to "AxByCzDxyz" (where "xyz" is any string of 3 characters).

* The TABC command may be used to specify tab compression. If "TABC ON" is specified, EDIT will replace strings of blank characters in any lines written to the edit file

with TAB characters based upon the user's current tab
settings. This can sometimes result in a significant
reduction in the size of the file. "TABC OFF" (the
default) may be used to inhibit the tab compression.

*   Multi-line editing commands may be entered. The user
    may request continuation of a command line by ending the
    current command line with a semi-colon (the semi-colon
    must not lie within a string, and must appear at a point
    in the command at which a semicolon is syntactically
    permitted); EDIT will prompt the user (with ">*") for
    the remainder of the command. Multiple lines of
    continuation may be entered. Commands in an Edit XEQ
    file may be continued in a similar fashion. The command
    is parsed and checked for errors on a line-by-line basis
    as it is typed (or read from the XEQ file); the maximum
    size of a command is limited solely by the amount of
    memory available to EDIT.

*   The "L" command may be used to invoke PCL's "LIST"
    command from within EDIT.

*   EDIT may be used to examine (although not to update, nor
    to merge records into) consecutive files. EDIT will
    display the line numbers of the file as integers. Any
    attempt to update the file will be aborted.

*   FOO EDIT will automatically set the SE range upon the
    completion of a command in several cases where E01 EDIT
    would not. When the user enters an "EDIT fid" command,
    the SE range will be set to include the entire file.
    When the user exits from a BUILD, IN, or IP operation
    the SE range will be set to the last line entered. When
    the user uses RN to move a single line, the SE range
    will be set to the (moved) line. When EDIT completes a
    MK (or MKP) operation the SE range will be set to the
    destination range.

*   If the user enters an IN, IP or IS command without a
    starting line number, the insertion will be started at a
    line one increment beyond the end of the current SE
    range. The user may specify an increment on the IN or
    IP command without being required to specify the
    starting line number - for example, entering "IN ,.1" is
    taken to mean "Start inserting at a line whose number is
    0.100 beyond the end of the range that I'm SE'd to."

*   Conditional editing of lines within the current SE range
    may be specified with the IF, EL ("ELse"), and EI
    ("EndIf") commands. The IF command is of the form

        [.....;] IF sse; ..... [;EL; ..... [;EI; .....]]

If the SSE is true for the current SE line, the commands
following the IF are executed; if the SSE is false for
the current SE line, the commands following the ELse are
executed (if the ELse was specified). IFs may be nested
to any depth. It is not necessary to specify ELses or
EndIfs for all IFs in a command; the default assumption
is that if the SSE is false no commands should be
executed for that IF case; any EndIfs not entered by the
user will be assumed to fall at the end of the command.

* Column zero now refers to the last non-blank column on
the line. This is most useful when used with the F
(Follow) operator, as it allows appending of data to the
end of the current SE line.

* The RL ("Repeat Line") command may be used in a command
sequence that updates lines in an SE range; it causes
EDIT to jump back to the beginning of the command and
continue editing the current record if (and only if) the
current record has been modified by a string
substitution or movement command.

* The QR ("Quit Record") command may be used to indicate
that EDIT should stop processing the current record (as
though the end of the command had been encountered) and
should go on to the next line in the SE range.

* The NO ("No change") command may be used within a
command line to indicate that the current SE line should
not be changed regardless of any changes that may have
been indicated by any string substitution operations
earlier in the command. The CL ("Column Limit") command
may be used to change the column limits for string
searches and changes; the changed limits apply only to
the current line, and are reset to the limits specified
on the SE command when the next line in the SE range is
edited.

* Two new commands have been added which permit the
selective copying of the lines specified in the SE range
to another area in the file. The CP ("Copy Protected")
and CI ("Copy Interlaced") commands take the form
"CP (or CI) [n][,i]" where "n" specifies the beginning
of the destination area and "i" specifies the line
number increment for copied lines. The CP command will
not copy the indicated line(s) if: (1) the line
indicated by "n" exists in the file, or (2) if the
incremented "n" value equals or exceeds a line number
existing in the file ("CP" behaves much like the "IP"
command in this way). The "CI" command will copy the
indicated lines regardless of whether the copy operation

is over-writing existing lines in the destination range.
The CP and CI commands need not be the first (or only)
intra-line editing command specified in a command; the
user may precede the CP or CI command with one or more
string substitution or shifting commands, in which case
the line(s) copied to the destination area will be the
SE'd lines as altered by the specified substitutions.
It is even possible to copy the line in a changed form
without altering the original line, by following the CP
or CI command with a NO command. For example,

   *SE 1-100
   *IF /WHICH/; O/FEE/S/BIRD<Macbeth>/; CP200,1; NO; EL; DE

This command sequence will scan all lines in the range
from 1 to 100. If a line contains the string "WHICH",
EDIT will copy the line to an area which begins at line
200 (with increments of 1.000 between successive lines);
the new copies of the lines (but not the original lines)
will have all occurrences of the string "FEE" changed to
"BIRD<Macbeth>". Any lines in the range 1-100 that do
not contain the string "WHICH" will be deleted.

*   If the user enters a "DE" command without a line number,
     and if the command that specified the current SE range
     includes more than one line and did not specify a string
     selection expression (SSE), and if the DE command was
     not entered from an XEQ file, EDIT will type

        "--DELETE FROM mmmm.mmm TO nnnn.nnn? (Y OR N)"

     and prompt for a response. If the user enters "Y", EDIT
     will delete the entire SE range; if the user enters
     anything else, EDIT will delete nothing.

*   The DL ("Deletion Limit") command may be used to limit
     the number of lines that will be deleted from the file
     by a DE command. The DL value will also limit the
     number of lines that will be deleted from the
     destination range specified by an MK or MD command. If
     the specified maximum number of lines to be deleted is
     exceeded, the operation will be aborted with a
     "CUTOFF at mmmm.mmm" message.

*   The single-quote (') and double-quote (") characters may
     be used to delimit EDIT strings in the same way that the
     slash character is used. Each individual string must
     begin and end with the same delimiter; however, strings
     with different delimiters may be freely intermixed
     within an EDIT command.

1.2.8   PCL enhancements

* The NF ("no formatting") option may be used when copying
  files to a device - it indicates that PCL is not to
  print the usual header record (which consists of the
  date and time, and the identity of the file being
  copied).

* The UC and LC options may be used to have PCL convert
  any lower-case letters in the data being copied into the
  corresponding upper-case letters, or vice versa.

* The JOB option may be used on the COPY, COPYSTD,
  COPYALL, LIST, and DELETE commands; it specifies that
  the indicated file should be opened in (JOB) mode rather
  than in (SAVE) mode.

* The standard file input to a COPYSTD command may be from
  a device (CR or ME, for example).

* PCL normally considers lower-case letters to be
  unprintable; it prints any file names containing
  lower-case letters in hexadecimal, and represents
  lower-case characters in hexadecimal-format COPYs with
  the '.' character. If any command input to PCL contains
  a lower-case letter, PCL will recognize that fact and
  will (for the remainder of the PCL session) treat
  lower-case letters as printable characters.

* The LIST command may now be used to list the contents of
  an ANS tape set. Data displayed will include the file
  formats, volume serial numbers, block counts, and file
  names.

* When PCL is run in batch and is commanded to copy a file
  to the line printer, it will skip two lines before and
  after the file to improve readability. This
  line-skipping may be suppressed with the NF option
  mentioned above.

* The list of filenames output during COPYALL, COPYSTD,
  and DELETEALL processing is now tabular (like the output
  from a simple LIST command). If a file cannot be copied
  or deleted as requested, its name will be printed on a
  separate line with the error code and one of the
  indicators "IN" or "OUT".

1.2.9   Operator-visible enhancements

*   Console messages from ghost jobs are preceded by the
     ghost's user number and name, rather than by the user
     number and account number. For example, a message from
     the system initialization ghost might appear as

         4:(GHOST1)   ANSFORT NOT IN :SYS

     rather than as

         4::SYS   ANSFORT NOT IN :SYS

*   The post-handler for the operator's console has been
     enhanced to permit the use of the underscore ("_" -
     pronounced "zot") character as a "rubout" key. Each zot
     encountered in the buffer will cause the rightmost
     unerased character to the left of the zot (and the zot
     itself) to be erased from the buffer; the "actual record
     size" value passed back to the user's DCB (or to the
     TEXTC string via M:KEYIN) is adjusted to reflect the
     deletions. Due to this enhancement, there is no way for
     the operator to actually include a zot character in the
     text of a key-in.

*   When CP-V is booted on a Xerox 560 system, it will
     output a sequence of characters to the operator's
     console that will set the console's tab stops to the
     values expected by the CP-V software.

*   During a boot from tape, if the operator depresses the
     console interrupt key (control-Y or control-Z "I" on a
     560) to cancel the boot process, CP-V will automatically
     rewind the boot tape in preparation for another boot
     operation.

*   During the system initialization process, GHOST1 will
     store into locations X'27' and X'28' the instruction
     sequence necessary to invoke an operator recovery. If
     an operator recovery becomes necessary, the operator
     can simply halt the CPU, depress CPU RESET, increment
     the PSD (once on a Sigma 9, twice on a Sigma 5, 6, or 7)
     and put the CPU in RUN. This method of invoking an
     operator recovery has the advantage that registers 0 and
     1 are not destroyed. The time-honored method of booting
     from RAD with sense switch 3 set is still available.

*   The !SEND,ALL key-in no longer affects the 55-character
     online page heading; only the !HEADING command changes
     the header. !SEND keyins may be used to send messages
     of up to 72 characters; if a !SEND (or !HEADING)

command specifies a message of greater than 72 (55)
characters, the message "MESSAGE TRUNCATED" will be
typed on the console, and as much of the message as
possible will be sent.

* The key-in "!DISPLAY" (in all of its various forms) may
  be abbreviated "!DI". The "!MOUNT" key-in may be
  abbreviated "!M". The longer forms of both keyins may
  still be used.

1.2.10   ANLZ enhancements

* The display produced by the "ALL" command (and by the
  standard ANLZ sequence performed after a recovery) now
  includes two new displays: the T:P2SI file and the UMOV
  data area. The T:P2SI file contains a copy of all
  SYSGEN control commands used during PASS2 processing.
  The UMOV data display includes the data portion of the
  UMOV overlay, running from symbol SSDATU: through
  TOPUMVDTA.

* The DCT displays have been altered slightly. DCT9 is
  now displayed as a 32-bit field instead of a 16-bit
  field. Tables DCT26, DCT27, DCT28, and DCT29 are
  displayed in the appropriate formats.

* When displaying current or in-core users, ANLZ will now
  dump the users' spare file management buffers.

* Each of the ANLZ overlays now has a patching DEF defined
  at the beginning of the overlay's procedure. Overlay
  ANALZ01 has the symbol PP01, ANALZ02 has the symbol
  PP02, and so on.

1.2.11   FIX enhancements

Several new features have been added to the FIX program,
affecting both HGP reconstruction and interactive functions:

* During an HGP reconstruction, the F ("Filenames") option
  may be requested. This option is identical to the A
  option except that granules in error will not be dumped
  to the line printer.

* FIX now has the ability to dump to the line printer the
  content of any granules recovered during an HGP

reconstruction (that is, any granules that were not listed as "available" but which were not part of any valid directory or file). At the end of an HGP reconstruction, if the "A" printout mode is in effect, FIX will ask the operator if recovered granules are to be dumped. The dump may be terminated at any time by interrupting FIX and changing the printout mode to "F", "E", or "N". This option should not be used if there have been many 75-type file errors or if the system has ever been rebooted without being properly !ZAP'ed, as these situations will lead to a large number of granules being recovered.

*   The commands "DUMP fid CFU" and "FIX fid CFU" may be used to display or delete, respectively, any CFU (Current File Usage) table entries for a specified file. "FIX fid CFU" may be used to "un-busy" files that were in use by a user who was aborted from the system and not run down properly (for instance, if a fatal JIT swap error occurred); it should be used with extreme caution to avoid damage to the CFU tables and file system.

*   The "FIX da" and "CHECK da" commands (where "da" is a six-digit hexadecimal disk address) may be used to examine and modify granules on any RAD or disk device. These commands should be used only online and should be used with *extreme* caution; they cause FIX to read in the indicated granule and associate DELTA which may then be used to examine and modify the granule. The content of the granule is available at locations .0 through .1FF; when the user types ";G" the granule is re-written with the (possibly) changed data.

*   At boot time, if FIX determines that the primary and secondary (dual) copies of ALLOCAT's data do not match, it will display on the operator's console the time stamp contained in each copy of the data, and will then ask if the secondary copy of the data is to be used. The display is of the form:

        DATA(N)TIME=yymmddhhmmqqqqq
        DUAL(Y)TIME=yymmddhhmmqqqqq
        DO YOU WANT ALLOCAT DUAL DATA(Y/N)

where "yymmddhhmmqqqqq" is the date and time (down to the millisecond level) that the ALLOCAT data was written.

1.2.12 COC enhancements

Several enhancements have been made to terminal (COC) I/O
capabilities:

* The M:TS3 CAL now returns the current value of the
  "blank lines before page heading" and "blank lines after
  page heading" system variables.

* The M:STA CAL may be used to set the values of the
  "lines before/after page heading" variables, as well as
  the value of the "current cursor position" variable. The
  "current cursor position" may also be set by a new COC
  suboption on the M:WRITE CAL.

* Vertical format control (VFC) handling has been expanded
  to properly handle the X'Dx' and X'Ex' series VFC codes,
  thus permitting COBOL programs that specify "PRINT AFTER
  ADVANCING" to function properly when outputting to an
  online terminal.

* The GETBUF and RELBUF routines are now executed with
  interrupts inhibited, thus solving some rare re-entrancy
  problems.

* The COC interrupts are now cleared by means of an
  appropriately coded WD instruction rather than by an
  LPSD, thus curing an undesirable interaction with some
  user real-time routines.

* Autosave (line disconnect) handling has been improved.
  Under CP-V E01, if a disconnected user's autosave image
  timed out, the program's exit control routine would be
  entered; if the program attempted to issue an M:READ to
  the terminal it would be unconditionally terminated.
  Under CP-V F00, the program's exit control routine will
  still be entered; if the program issues an M:READ to
  the terminal, the read will be aborted with an I/O error
  code 5B-00 ("Line hung up"). This change permits the
  APL processor to simulate a ")CONTINUE" command if a
  .user authorized for auto-save becomes disconncted and
  does not reconnect within the installation-defined tj

* The Escape-W character sequence now toggles the "di
  output" mode instead of unconditionally turning it

* The algorithm used to determine the point at whic
  terminal should be blocked (placed in state STOP
  been improved. If two terminals of different s
  !COUPLEd and the slower terminal cannot keep u'
  output being generated on the faster terminal
  routines will discard the "overflowing" outpi

send it to the slower terminal, rather than permitting
the slower terminal to collect several minutes of
potential output and thus hog most of the available COC
buffers.

1.2.13   Sigma 5 speedups

On Sigma 5 systems, a significant increase in CP-V monitor
performance has been achieved by the identification of
several frequently-used byte-string instruction sequences in
the monitor and loader that were forming "hot spots" during
normal system operations. Under CP-V E01, execution of
these (or any) byte-string instructions on a Sigma 5 causes
a "Nonexistant Instruction" trap which is intercepted and
interpreted by the CP-V byte-string instruction simulators,
which then simulate the requested instruction. Under CP-V
F00, the monitor initialization process on Sigma 5s will
replace these "hot spot" instruction sequences with branches
to special entry points in the byte-string simulation
routines, thus saving the overhead involved in intercepting
the trap and acquiring scratch space in the user's TSTACK.
The special entry points into the byte-string simulators can
also make certain assumptions about the current values of
the registers, thus permitting the simulation process for
the "hot spot" instructions to be significantly faster than
the standard, highly generalized simulation.

One "hot spot" has also been identified in the CP-V loader,
and similar measures have been taken to decrease the
overhead involved. A small byte-string simulation routine
has been added to the loader's source code, and a GENMD
(which will install itself automatically on Sigma 5s) will
cause the loader to branch to the simulation routine at the
appropriate point.

The degree of performance improvement to be expected on
Sigma 5 systems is highly dependent upon the type of
workload that the system is exposed to. The monitor
speedups will be most obvious to programs performing large
amounts of keyed file I/O; the loader speedups will be
greatest when the loader's REF/DEF stack becomes large (for
example, when loading with a public library or with :J0 or
:J1). Tests performed on a 128K Sigma 5 system at LADC
under varying workloads showed the following reductions in
monitor service time:

Function performed	Approximate improvement
PCL - COPYALL of LT to public DP - 7500 granules of consecutive files.	7%
PCL - COPYALL of 7500 granules of consecutive files from one account in public DP to another.	1%
PCL - COPYALL of 3000 granules of keyed files (mixed LMNs and Edit files) from private DP to public DP.	11%
loader - !LYNX of a 12K program (mixed ANS FORTRAN and Metasymbol ROMs, loading with :P1 and :J0). The improvement was in processor execution time rather than in monitor service time.	34%

1.2.14   Spill/Fill

CP-V's code for the symbiont file Spill/Fill capability has been substantially rewritten for F00. A new appendix (I) has been added to the CP-V System Programming Reference Manual describing the necessary FPTs and coding conventions. Due to the delicacy of the FPTs necessary for Spill/Fill operations the M:LDEV procedure may not be used to assemble these FPTs - they *must* be hand-coded.

*   It is possible to spill a symbiont file ("symfile") in either Save or Delete mode; the mode is specified by the ASAVE and DELETE bits in the M:LDEV FPT.

*   When a symfile is spilled in the Delete mode, it is deleted from RBBAT's queues by the initial M:LDEV request. The symfile's granules are returned to the system when they are read by the spilling program; if the program is aborted for any reason, any unspilled granules remaining in the symfile will be lost to the system.

*   When a symfile is spilled in the Save mode, it is deleted from RBBAT's queues when initially opened by the spilling user. It is normally re-entered into RBBAT's queues when released by the user; however, the user may specify the DELETE bit in the M:LDEV FPT that releases

the symfile to indicate that the symfile is to be purged
from RBBAT's queues and its granules returned to the
system. If the spilling program is aborted, the symfile
will be re-entered into RBBAT's queues as though the
user had specified SAVE. When the initial save-mode
spill request is issued there must be a symfile slot of
the appropriate type available - if there is none, the
spilling user will be queued for access to RBBAT (placed
in state SQR) until a slot becomes available.

* Spill/Fill may be used to spill and restore JCL
  symfiles, non-control input (NCTL) symfiles, and most
  output symfiles. Running jobs cannot be spilled;
  neither can concurrent output (COMODE) symfiles.

* Certain precautions *must* be observed when using
  Spill/Fill: (1) The FPARAM data passed by the M:OPEN of
  a Spill stream must be used as the FPT of the M:LDEV CAL
  that requests a Fill operation. (2) The data read
  during a Spill operation should be used as the data
  written during a Fill operation. No modifications
  *of*any*sort* should be made to either the FPARAM data
  or spilled data - such modifications can easily lead to
  the loss of part or all of a filled symfile. (3) To
  ensure that all symfiles are filled with the proper
  priorities, the fill operation should be performed only
  after the operator keys in !ONB O and locks all of the
  symbiont output devices. (4) When spilling JCL
  symfiles in the Save mode, the operator should key in
  "!ONB O" to preserve the proper priorities of the
  spilled symfiles. (5) The stream used for spilling or
  filling symfiles should not be used for any other
  purpose. Note that the ASAVE and DELETE options
  function differently for Spill/Fill streams than they do
  for normal co-operative streams. (6) CP-V F00
  Spill/Fill files are not compatible with files spilled
  under previous versions of CP-V.

* When a JCL symfile is re-inserted into RBBAT's queues
  following a save-type Spill operation, the operator is
  notified by a "PROCESSOR JOB" message specifying the
  job's account number and SYSID. The message will appear
  to originate from user 66xx, where xx indicates the
  workstation number of the job just spilled. When a JCL
  symfile is filled, a similar message seeming to
  originate from user 77xx will appear.

* NOTE: While the SYSID of symfiles spilled in Save mode
  is not modified, the system assigns new SYSIDs to
  newly-filled JCL and non-control input symfiles to
  ensure that input job IDs remain unique. If jobs that
  specified (ORDER) on their !LIMIT cards are spilled and

then filled they will run in the order in which they are
filled, which may not be the same as the order in which
they were originally submitted (if, for example, they
were not all submitted at the same priority). By
examining the FPT returned in the spill DCB's FPARAM
area, the spilling program can detect JCL symfiles that
specified (ORDER); the program might then parse the
!JOB command of such symfiles and maintain a table of
jobs and their accounts and SYSIDs, so that they could
be filled in the proper sequence.

* Access to the Spill/Fill feature is controlled by the
user's privilege level. A user with privilege X'A0' may
spill output files in the Save mode and may fill output
files. A user with privilege X'B0' may spill any
symfile in Save mode, and may fill output files. A user
with privilege X'C0' may spill any symfile in either
Save or Delete mode, and may fill any symfile.

* Two unsupported programs in the X account called DMPQ
and RESQ may be used to manage the Spill/Fill process.
See section 4.1.9 for details.

1.2.15   Volume Initialization programs

The chart below describes which programs may be used to
perform disk pack initialization operations for CP-V disk
packs. Note that MPCD, the diagnostic program for MPC disk
systems, may be run either in a stand-alone environment or
in an on-line CP-V environment. The on-line version is
distributed with CP-V F00 and is loaded as a segment of
OLMON (706497B00) during system generation (see section 4).

	Write Headers	Surface Test and Assign Alternates	Write VTOC	
			Single Account	Multiple Accounts
CP-V On-line VOLINIT	X	X	X	X
Stand-alone VOLINIT (706226E00)	X	X	X	-
INITVOL.X	-	-	X,M	-
MAPINIT.X	-	-	X,M	X,M
MPCD Disk Diagnostic (730038A00)	M	M	-	-

where

X =   applicable to Xerox disk system models 3275, 7242, 7260, 7270, and 7275.

M =   applicable to Honeywell MPC disk system model 9210.

1.2.16   Miscellaneous enhancements

*   Pages-printed accounting now functions properly when VFC codes in the X'60', X'Dx' and X'Ex' series are used.

*   If a program attempts to print more lines on a page than the LDEV definition (default or user-specified) permits, the output routines will insert a page eject at the proper point to ensure that the number of pages charged to the user is the same as the number of pages physically printed. If it is desirable to override this feature and print a stream of continuous output (for example, when generating line-printer graphs) the user may issue an !LDEV command (or M:LDEV CAL) specifying (LINES,0); in this case the system will assume (for accounting purposes) that there are 32 printable lines on each page, but will not force a page eject at end-of-page.

* When a ghost user aborts, the snapshot of the program's
  PSD and registers is preceded by several blank lines
  instead of a page feed, thus (usually) saving a page of
  paper. This is also true for batch jobs that have not
  specified !PMDs.

* The "hot card reader" feature previously contained in
  the CLOCK4 module and activated by a patch has been
  moved to a separate module in UMOV which is included in
  the system by the presence of the "(HOTCARD)" option on
  the :MON command input to the PASS2 processor.

* A "hot AVR" feature has been developed, and may be
  included in a system by use of the "(HOTAVR)" option on
  the :MON card. This feature, called once per second by
  the CLOCK4 routine, will automatically AVR (mount) any
  Xerox or ANS labeled tapes that are brought to "ready"
  status on a write-protected tape drive; it will also
  AVR any private disk packs that are brought to "ready"
  on a disk drive that does not generate an interrupt at
  such times (disk packs that do generate interrupts are
  AVR'ed automatically by the system whether HOTAVR is
  included or not).

* When a user issues a "MOUNT" request for a tape or disk
  pack that is not satisfied within one minute, the system
  will sound the audio alarm for several seconds each time
  the MOUNT message is output to the console. This
  feature may be disabled at installation option by
  setting the X'8' bit of S:OPTION (in the LITERALS
  module).

* If a user (batch or online) issues an "execute load
  module" request for a file that is either consecutive or
  Edit keyed (KEYM=3), the FETCH routines in STEPOVR will
  cancel the load module fetch, construct an !XEQ command
  of the appropriate format in the user's command buffer,
  and pass the command back to TEL or CCI for processing.
  Users may thus (in most cases) invoke command files by
  calling them as load modules; they may be invoked from
  TEL (via "!filename."), from within a program (via
  M:LDTRC), or from LOGON (by declaring "CALL=filename"
  when the user's account is authorized). This feature
  may be disabled by the system manager by setting the
  X'2' bit of S:OPTION.

* The !ERROR facility for online users has been enhanced.
  Users specifying !ERROR will now see "MOUNT" requests,
  error messages, and operator key-ins associated with
  disk packs as well as with tapes (but may not use
  Control-Y to force an error return from a disk pack
  error requiring operator intervention). Errors

occurring on system disk packs will be reported to the
user who issued the I/O request, with a serial number of
"PUBLIC" appearing in the message. Users who have MOUNT
requests outstanding will see the message produced by
the AVRing of their pack or tape if AVR is used to mount
the volume.

* PIGEON has been upgraded for better response and
  responsibility. Messages from the operator to a user
  (or all users) will be preceded by a bell character to
  alert the user (operator !MOUNT key-ins echoed to users
  specifying !ERROR also include a bell). If the user's
  terminal is at the left side of the platen (column 1)
  PIGEON will not send an initial CR/LF sequence, reducing
  paper use. FOO PIGEON is much less likely to either hog
  COC buffers or get hung waiting for a disconnected or
  inactive line than was E01 PIGEON.

* The M:KEYIN CAL no longer demands the presence of the
  REPLY, SIZE, and ECB parameters. If REPLY is omitted,
  the operator's (or on-line user's) response will be
  placed in the buffer specified by the MESS parameter
  (i.e., replacing the message sent to the operator). If
  SIZE is omitted, a maximum size of 60 characters (not
  including the byte count) will be assumed. If ECB is
  omitted, no ECB processing will be done. It should be
  noted that M:KEYIN always performs wait I/O; even if
  the CAL specifies an ECB, the user's program will never
  regain control until the operator (or on-line user) has
  responded to the request.

* Code has been added to the scheduler to ensure that when
  the operator enters !ZAP the system does not actually
  SCREECH until: all users except RBBAT and ALLOCAT have
  been logged off; ALLOCAT's data stacks have been
  cleared and the HGP tables updated; RBBAT and ALLOCAT
  are asleep; no I/O of any sort is in progress. This
  change will permit all messages generated after the !ZAP
  command is entered to be successfully printed on the
  console, and will reduce the number of mis-matches
  between ALLOCAT's primary and dual data when the system
  is re-booted after being !ZAP'ed. CP-V FOO takes
  somewhat longer to terminate after a !ZAP command than
  did previous systems (usually 10-15 seconds longer).

* There are now very few situations that can induce a
  software check 3B ("COOP sent OUTSYM bad data"). Most
  of the situations that previously caused 3B's will now
  cause OUTSYM to abort processing of the erroneous file,
  send a message to the operator, generate an entry in the
  system error log, and continue.

* DELTA's interface with user exit control routines has
  been changed. Typing ";E" will cause DELTA to exit to
  TEL without going to the user's exit control logic.
  Typing ";X" will cause DELTA to go to the user's exit
  control routine - registers 0 and 1 (TCB address and PSD
  address in TCB) will be set up properly, but the
  contents of registers 8 through 12 will be arbitrary.

* The Loader no longer deletes duplicate internal symbols
  during a multi-ROM !LOAD (or !LYNX).

* If an symbol DEFed within a load module has the same
  name as a DEFed symbol in a library included in the load
  module, the loader will list the symbol name in the
  "Doubly Defined Symbols" area in the load map. This
  condition is not considered an error and will not result
  in an increase in the severity level of the load module.

* Boot-time reconfiguration (:REMOVE and :PART) has been
  updated to function properly. Both single- and
  dual-access controllers may be partitioned and removed
  at boot time. Removing or partitioning devices at boot
  time will cause the resource counts for the appropriate
  device types to be updated properly.

* The private pack file management logic has been
  augmented to partially remove a restriction on the
  replacement of private pack files. Under CP-V E01 and
  prior systems, it was impossible to replace a file on a
  private disk pack with a file of a different
  organization without first deleting the existing file.
  Under CP-V F00, a consecutive file on a single volume
  pack set (only!) can be replaced by a keyed file of the
  same name without pre-deletion being required, and vice
  versa. The restriction remains in effect for files on
  multi-volume private pack sets, and for all operations
  involving random files.

* The text and meaning of error codes 5600 and 5700 has
  been altered somewhat. Error 5600 now applies strictly
  to tapes; its message reads "5600 NO MORE ROOM ON THIS
  TAPE OR IN THIS TAPE SET". Error 5700 now applies
  strictly to disk and RAD operations; its message reads
  "5700 GRANULE LIMIT EXCEEDED OR SPACE EXHAUSTED".

1.3   Supporting Publications

The following table identifies the CP-V Operating System
reference manuals. An asterisk (*) following the Xerox
publication number indicates that a new revision package has
been made available for the F00 version of CP-V. The
Honeywell Order Numbers indicate the manual and revisions to
request when ordering a manual for use with CP-V F00.

	Xerox Pub. #	Honeywell order #	addendums
CP-V BP Ref. Manual	90 17 64H-1 *	XL 89	A
CP-V OPS Ref. Manual	90 16 75H-2 *	XL 23	A, B
CP-V SP Ref. Manual	90 31 13B-2 *	XQ 63	A, B
CP-V SM Ref. Manual	90 16 74H-2 *	XL 21	A, B
CP-V TS Ref. Manual	90 09 07H-1 *	XG 15	A
CP-V TS Users' Guide	90 16 92D-4	XL 34	-
CP-V RP Ref. Manual	90 30 26C-2 *	XP 94	A, B {1}
CP-V TP Ref. Manual	90 31 12A-4 *	XQ 61	A, B, C, D
CP-V DB Tech. Manual	90 19 95D-3 *	XN 15	A, B, C
CP-V Pocket Guide	90 31 31C	XQ 77	-
CP-V Common Index	90 30 80C	XQ 37	-

Last-minute revisions to the CP-V F00 reference manuals are
not contained in a -91 document in the release materials.
Instead, revisions and corrections will be included in the
monthly Software Support Tape (SST) in the form of CHRONO
files in the PATCH account. The filenames take the form
"CHRONO-xxxx" where "xxxx" indicates the manual to which the
revisions apply - "CHRONO-TSRF" applies to the Timesharing
Reference manual, "CHRONO-DBTC" applies to the Data Base
Technical manual, etc.

{1} When installing revision packet B in the RP Reference
manual, do not install the update for pages 11 and 12 as is
indicated by the cover sheet - the update for these pages is
in error. Retain the copy of pages 11 and 12 provided in
revision packet A (CP-V E00 updates dated 11/76).

2.0   HARDWARE CONFIGURATION

CP-V runs in a minimum of 64K words of memory; however, the
minimum requirements are dependent upon the options selected
(for example, the TP option requires a minimum of 80K
memory). Combinations of options may require more than the
standard minimum for CP-V.

CP-V supports configurations of greater than 128K of memory
on Xerox 560 and Sigma 9 systems, and on extended Sigma 6/7
systems. The maximum amount of memory supported on these
systems is limited only by the CPU's addressing capability
or physical memory configuration limits.

CP-V multiprocessing support is provided for extended
Sigma 6/7, Xerox 560, and Sigma 9 systems. Up to four CPUs
are supported in Sigma 9 systems, and dual processor support
is provided for Sigma 6/7 and Xerox 560 systems.

3.0   SIDRs closed in F00

The following is a list of SIDRs closed by the release of
F00 CP-V.

22420	Severity 3	against A01	DEBUG tools
23178	Severity 3	against B00	Symbionts
24666	Severity 2	against B00	Symbionts
26932	Severity 2	against C00	Utility Processors
27189	Severity 2	against C01	Monitor Services
27211	Severity 2	against C01	CP-V in general
27345	Severity 5	against C01	System Management
27346	Severity 2	against C01	System Management
27354	Severity 4	against D00	Recovery
27394	Severity 3	against D00	System Management
27458	Severity 3	against D00	Symbionts
27499	Severity 3	against C01	System Management
27556	Severity 3	against D00	Communications
27770	Severity 2	against C01	Symbionts
27795	Severity 5	against C01	Utility Processors
27848	Severity 3	against D00	Miscellaneous
27915	Severity 5	against C01	Miscellaneous
27918	Severity 2	against D00	System Management
27968	Severity 3	against D00	Operator Communications
27969	Severity 2	against D00	Symbionts
27990	Severity 3	against D00	Communications
28078	Severity 5	against C01	Utility Processors
28080	Severity 3	against C01	Job Processors
28100	Severity 3	against C01	Symbionts
28239	Severity 2	against D00	Software Checks
28245	Severity 3	against D00	Utility Processors
28390	Severity 3	against C01	Symbionts
28484	Severity 2	against D00	Recovery
28491	Severity 5	against D00	Operator Communications
28521	Severity 3	against D00	System Management
28556	Severity 2	against E00	System Management
28557	Severity 2	against E00	System Management
28558	Severity 5	against D00	Utility Processors
28601	Severity 2	against D00	System Management
28634	Severity 2	against C01	Recovery
28652	Severity 2	against C01	CP-V in general
28663	Severity 3	against D00	Communications
28691	Severity 3	against E00	Utility Processors
28715	Severity 5	against C01	Operator Communications
28736	Severity 3	against C01	System Management
28832	Severity 2	against E01	File Management
28835	Severity 3	against E01	System Management
28844	Severity 2	against D00	Software Checks
28853	Severity 3	against D00	System Management
28871	Severity 2	against E00	Symbionts
28888	Severity 3	against E00	Utility Processors
28936	Severity 2	against D00	Software Checks

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29046    Severity 5    against DOO Communications
29067    Severity 3    against EOO Utility Processors
29073    Severity 3    against C01 Reliability
29123    Severity 1    against EOO System Management
29128    Severity 3    against DOO System Management
29129    Severity 3    against DOO Software Checks·
29161    Severity 2    against DOO Communications
29215    Severity 3    against DOO File Management
29249    Severity 3    against EOO System Management
29252    Severity 2    against EOO Operator Communications
29255    Severity 2    against DOO Communications
29267    Severity 2    against EOO Monitor Services
29271    Severity 5    against DOO Recovery
29279    Severity 3    against DOO Software Checks
29345    Severity 3    against EOO Recovery
29352    Severity 3    against EOO Utility Processors
29358    Severity 3    against EOO Utility Processors
29378    Severity 2    against DOO Reliability
29379    Severity 3    against DOO Communications
29404    Severity 3    against DOO File Management
29414    Severity 2    against EOO Software Checks
29431    Severity 3    against EOO DEBUG tools
29435    Severity 3    against DOO System Management
29451    Severity 3    against EOO System Management
29495    Severity 3    against EOO File Management
29552    Severity 2    against DOO System Management
29573    Severity 3    against DOO Communications
29577    Severity 3    against DOO Recovery
29578    Severity 3    against DOO Recovery
29611    Severity 3    against EOO DEBUG tools
29622    Severity 3    against EOO Job Processors
29633    Severity 3    against ECO System Management
29636    Severity 2    against EOO Loaders
29674    Severity 5    against EOO Utility Processors
29683    Severity 2    against DOO System Management
29732    Severity 2    against EOO Software Checks
29741    Severity 3    against EOO Symbionts
29744    Severity 2    against EOO DEBUG tools
29752    Severity 3    against C01 DEBUG tools
29766    Severity 2    against EOO System Management
29778    Severity 2    against EOO Recovery
29783    Severity 3    against EOO Utility Processors
29827    Severity 3    against EOO Loaders
29828    Severity 2    against EOO System Management
29835    Severity 2    against EOO File Maintenance
29839    Severity 2    against EOO File Maintenance
29841    Severity 3    against EOO Recovery
29845    Severity 3    against EOO TP
29850    Severity 3    against EOO Symbionts
29876    Severity 3    against EOO System Management
29886    Severity 1    against EOO File Management
29911    Severity 2    against EOO Utility Processors
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29921   Severity 3   against E00 Communications
29922   Severity 3   against E00 Utility Processors
29925   Severity 2   against E00 Utility Processors
29935   Severity 3   against E00 SYSGEN
29948   Severity 3   against E00 File Management
29952   Severity 3   against E00 Loaders
29970   Severity 3   against E00 File Management
29973   Severity 2   against E00 Loaders
29976   Severity 5   against E00 Miscellaneous
29983   Severity 3   against E00 Symbionts
29985   Severity 3   against E00 Monitor Services
29987   Severity 2   against E00 TP
29996   Severity 5   against E00 Communications
29997   Severity 5   against E00 File Management
29998   Severity 3   against E00 Loaders
30032   Severity 4   against E01 File Maintenance
30055   Severity 3   against E01 Reliability
30056   Severity 3   against E01 Recovery
30057   Severity 3   against E01 Recovery
30059   Severity 2   against E01 Job Processors
30061   Severity 4   against E01 CP-V in general
30065   Severity 2   against E01 System Management
30067   Severity 2   against E01 DEBUG tools
30074   Severity 2   against E01 SYSGEN
30075   Severity 2   against E01 File Management
30076   Severity 2   against E01 File Management
30077   Severity 2   against E01 File Management
30078   Severity 2   against E01 Recovery
30079   Severity 2   against E01 File Management
30080   Severity 2   against E01 Recovery
30083   Severity 3   against E01 System Management
30084   Severity 5   against E01 CP-V in general
30085   Severity 2   against E01 CP-V in general
30086   Severity 5   against E01 CP-V in general
30087   Severity 2   against E01 File Management
30090   Severity 5   against E01 CP-V in general
30091   Severity 3   against E01 File Management
30092   Severity 2   against E01 System Management
30093   Severity 3   against E01 Recovery
30095   Severity 2   against E01 Initialization
30096   Severity 3   against E01 Recovery
30097   Severity 2   against E01 CP-V in general
30099   Severity 3   against E01 File Maintenance
30100   Severity 2   against E01 Recovery
30101   Severity 3   against E01 CP-V in general
30102   Severity 2   against E01 SYSGEN
30103   Severity 2   against E01 Initialization
30104   Severity 2   against E01 Initialization
30105   Severity 2   against E01 SYSGEN
30106   Severity 5   against E00 Recovery
30108   Severity 2   against E00 Monitor Services
30110   Severity 5   against E00 TP
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30155    Severity 2    against E00 SYSGEN
30159    Severity 3    against E00 File Maintenance
30163    Severity 5    against E00 Job Processors
30171    Severity 4    against E00 Symbionts
30181    Severity 3    against E01 File Management
30182    Severity 3    against E01 File Management
30185    Severity 3    against E01 DEBUG tools
30194    Severity 3    against E01 DEBUG tools
30196    Severity 3    against E00 Loaders
30208    Severity 3    against E01 SYSGEN
30211    Severity 2    against E00 Loaders
30214    Severity 2    against E00 Loaders
30215    Severity 2    against E00 Loaders
30218    Severity 2    against E00 Job Processors
30233    Severity 2    against E00 CP-V in general
30236    Severity 3    against E00 File Maintenance
30237    Severity 3    against E00 Utility Processors
30238    Severity 2    against E00 File Maintenance
30243    Severity 3    against E01 Communications
30244    Severity 3    against E01 CP-V in general
30245    Severity 5    against E01 SYSGEN
30246    Severity 3    against E01 SYSGEN
30253    Severity 2    against E01 Recovery
30254    Severity 2    against E00 Recovery
30255    Severity 3    against E01 File Management
30256    Severity 2    against E01 File Management
30257    Severity 2    against E00 Symbionts
30262    Severity 3    against E00 File Management
30263    Severity 3    against E00 Software Checks
30268    Severity 5    against E00 Operator Communications
30273    Severity 2    against E01 TP
30284    Severity 2    against E00 Symbionts
30293    Severity 2    against E00 File Maintenance
30296    Severity 3    against E00 Utility Processors
30297    Severity 3    against E00 Monitor Services
30298    Severity 2    against E00 System Management
30299    Severity 2    against E01 File Management
30300    Severity 3    against E01 Miscellaneous
30301    Severity 2    against E00 System Management
30304    Severity 2    against D00 Software Checks
30311    Severity 2    against E00 Monitor Services
30314    Severity 3    against E01 File Management
30319    Severity 2    against E00 File Management
30322    Severity 2    against E00 Utility Processors
30330    Severity 3    against E00 Operator Communications
30333    Severity 3    against E01 Utility Processors
30334    Severity 2    against E01 Utility Processors
30338    Severity 3    against E01 TP
30340    Severity 3    against E01 TP
30342    Severity 2    against E00 File Maintenance
30343    Severity 5    against D00 System Management
30345    Severity 2    against E00 TP
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30346    Severity 2    against E01  Recovery
30347    Severity 2    against E01  Accounting/Performance
30358    Severity 3    against E00  File Maintenance
30364    Severity 2    against E01  Utility Processors
30369    Severity 3    against E01  Utility Processors
30373    Severity 3    against E00  Recovery
30374    Severity 3    against E01  Recovery
30375    Severity 3    against E01  Recovery
30382    Severity 3    against E01  Utility Processors
30383    Severity 5    against E01  System Management
30389    Severity 2    against E00  Communications
30398    Severity 3    against E00  Software Checks
30399    Severity 2    against E00  System Management
30400    Severity 4    against E00  Accounting/Performance
30403    Severity 3    against E00  Utility Processors
30404    Severity 5    against E00  Utility Processors
30412    Severity 5    against E00  Monitor Services
30415    Severity 4    against E01  Communications
30416    Severity 4    against E01  Communications
30418    Severity 1    against E00  Communications
30419    Severity 2    against E00  Loaders
30420    Severity 2    against E00  Loaders
30421    Severity 2    against E00  Loaders
30425    Severity 2    against D00  Loaders
30471    Severity 3    against E00  Monitor Services
30472    Severity 3    against E00  Utility Processors
30473    Severity 2    against E01  TP
30475    Severity 2    against E00  Recovery
30481    Severity 5    against E01  CP-V in general
30482    Severity 2    against E01  TP
30487    Severity 2    against E01  Utility Processors
30495    Severity 5    against E00  Operator Communications
30498    Severity 3    against E00  Utility Processors
30500    Severity 3    against E00  DEBUG tools
30503    Severity 3    against E00  Utility Processors
30508    Severity 4    against E01  SYSGEN
30509    Severity 4    against E01  File Management
30511    Severity 4    against E01  Software Checks
30517    Severity 2    against E00  File Maintenance
30520    Severity 2    against E01  Miscellaneous
30521    Severity 2    against E01  Utility Processors
30523    Severity 2    against E00  Utility Processors
30525    Severity 5    against E01  DEBUG tools
30528    Severity 2    against E00  DEBUG tools
30529    Severity 3    against E00  Loaders
30533    Severity 2    against E00  File Management
30534    Severity 3    against E00  System Management
30536    Severity 3    against E01  Utility Processors
30545    Severity 3    against E00  Utility Processors
30557    Severity 3    against E01  DEBUG tools
30562    Severity 3    against E01  Utility Processors
30565    Severity 3    against E01  Loaders
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30571    Severity 3    against E01 SYSGEN
30574    Severity 5    against E01 Recovery
30587    Severity 2    against E00 Utility Processors
30590    Severity 2    against E01 SYSGEN
30602    Severity 2    against E01 File Management
30603    Severity 2    against E01 Utility Processors
30612    Severity 3    against E00 Recovery
30634    Severity 2    against E01 Utility Processors
30640    Severity 2    against E01 Recovery
30655    Severity 5    against E00 File Maintenance
30656    Severity 3    against E01 File Maintenance
30657    Severity 3    against E00 File Maintenance
30669    Severity 2    against E01 CP-V in general
30672    Severity 3    against E01 Utility Processors
30684    Severity 3    against E01 System Management
30686    Severity 5    against E00 Operator Communications
30688    Severity 2    against E00 Operator Communications
30689    Severity 3    against E01 Utility Processors
30694    Severity 2    against E01 Utility Processors
30695    Severity 5    against E01 DEBUG tools
30696    Severity 2    against E01 Reliability
30698    Severity 3    against E00 System Management
30716    Severity 2    against E01 Symbionts
30717    Severity 5    against E00 Utility Processors
30718    Severity 3    against E01 Recovery
30719    Severity 3    against E01 Monitor Services
30734    Severity 5    against E01 CP-V in general
30736    Severity 2    against E01 Recovery
30745  . Severity 3    against E01 File Maintenance
30746    Severity 3    against E01 Utility Processors
30749    Severity 3    against E01 System Management
30752    Severity 3    against E01 System Management
30753    Severity 2    against E01 File Management
30754    Severity 5    against E01 System Management
30757    Severity 3    against E01 Operator Communications
30762    Severity 3    against E01 Utility Processors
30769    Severity 2    against E01 File Management
30770    Severity 2    against E00 File Maintenance
30771    Severity 3    against E00 File Maintenance
30772    Severity 3    against E00 CP-V in general
30775    Severity 5    against E00 Utility Processors
30783    Severity 2    against E00 Accounting/Performance
30785    Severity 3    against E01 CP-V in general
30786    Severity 5    against E01 Monitor Services
30790    Severity 2    against E01 Software Checks
30793    Severity 5    against E00 CP-V in general
30794    Severity 2    against E00 Symbionts
30795    Severity 1    against E00 System Management
30798    Severity 2    against E00 Utility Processors
30810    Severity 3    against E01 Utility Processors
30812    Severity 5    against E00 Utility Processors
30823    Severity 2    against E01 Utility Processors
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30833    Severity 3     against E01 System Management
30841    Severity 2     against E01 Reliability
30842    Severity 2     against E01 Utility Processors
30844    Severity 2     against E01 Utility Processors
30846    Severity 3     against E01 File Maintenance
30848    Severity 3     against E00 File Maintenance
30858    Severity 3     against E01 File Maintenance
30863    Severity 2     against E01 DEBUG tools
30870    Severity 3     against E00 File Maintenance
30871    Severity 2     against E00 File Maintenance
30874    Severity 3     against E00 Symbionts
30875    Severity 5     against E00 Software Checks
30893    Severity 5     against E01 Initialization
30894    Severity 5     against E01 Operator Communications
30895    Severity 5     against E01 CP-V in general
30896    Severity 5     against E00 CP-V in general
30897    Severity 2     against E01 File Management
30899    Severity 2     against E01 Recovery
30901    Severity 2     against E01 Operator Communications
30904    Severity 5     against E01 Initialization
30905    Severity 4     against E00 CP-V in general
30906    Severity 2     against E01 Job Processors
30908    Severity 5     against E01 System Management
30942    Severity 2     against E00 File Management
30949    Severity 5     against E01 SYSGEN
30967    Severity 3     against E00 Communications
30971    Severity 2     against E01 Reliability
30977    Severity 2     against E01 Utility Processors
30979 .  Severity 3     against E00 Communications
30982    Severity 3     against E01 SYSGEN
30985    Severity 5     against E01 Loaders
30991    Severity 2     against E01 File Maintenance
30992    Severity 2     against E01 File Maintenance
30993    Severity 2     against E01 Software Checks
31007    Severity 3     against E01 Operator Communications
31010    Severity 2     against E01 Monitor Services
31023    Severity 3     against E01 File Management
31037    Severity 3     against E01 Reliability
31044    Severity 2     against E01 File Management
31089    Severity 4     against E00 Operator Communications
31105    Severity 2     against E01 Communications
31110    Severity 3     against E01 TP
31111    Severity 3     against E01 TP
31112    Severity 3     against E01 TP
31116    Severity 3     against E01 CP-V in general
31119    Severity 5     against E01 System Management
31128    Severity 2     against E01 Utility Processors
31133    Severity 3     against E01 Loaders
31134    Severity 5     against E01 CP-V in general
31136    Severity 5     against E01 Miscellaneous
31137    Severity 2     against E01 System Management
31139    Severity 5     against E01 File Maintenance
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31140      Severity 5      against E01 File Maintenance
31141      Severity 2      against E01 Utility Processors
31148      Severity 2      against E01 Loaders
31156      Severity 2      against E01 File Management
31170      Severity 2      against E01 File Maintenance
31177      Severity 5      against E01 Recovery
31179      Severity 3      against E01 File Management
31191      Severity 5      against E01 File Maintenance
31194      Severity 2      against E01 File Management
31202      Severity 3      against E01 Utility Processors
31215      Severity 2      against E01 Utility Processors
31227      Severity 3      against E01 Utility Processors
31239      Severity 3      against E01 Utility Processors
31243      Severity 4      against E00 Utility Processors
31245      Severity 4      against E00 Loaders
31254      Severity 3      against E01 File Management
31263      Severity 2      against E01 Software Checks
31265      Severity 2      against E00 Loaders
31277      Severity 2      against E01 CP-V in general
31280      Severity 5      against E01 File Maintenance
31284      Severity 2      against F00 File Management
31289      Severity 5      against F00 System Management
31299      Severity 2      against E01 CP-V in general
31313      Severity 3      against E01 CP-V in general
31316      Severity 3      against E01 File Management
31325      Severity 3      against E01 System Management
31326      Severity 3      against E01 Job Processors
31327      Severity 3      against E01 Job Processors
31328    · Severity 3      against E01 Communications
31340      Severity 2      against E01 Miscellaneous
31354      Severity 5      against E01 Operator Communications
31355      Severity 3      against E01 Accounting/Performance
31356      Severity 2      against E01 CP-V in general
31362      Severity 3      against E00 File Maintenance
31364      Severity 2      against E01 File Management
31390      Severity 3      against E01 CP-V in general
31416      Severity 2      against E01 Software Checks
31428      Severity 2      against E01 System Management
31438      Severity 2      against E01 Recovery
31457      Severity 3      against EC1 File Management
31462      Severity 3      against E01 Monitor Services
31470      Severity 3      against E01 Accounting/Performance
31516      Severity 2      against E01 TP
31518      Severity 3      against E00 SYSGEN
31582      Severity 3      against E01 Utility Processors
31588      Severity 3      against E01 File Management
31601      Severity 2      against E01 CP-V in general
31603      Severity 3      against E01 Utility Processors
31605      Severity 4      against F0C CP-V in general
31671      Severity 2      against E01 Utility Processors
31673      Severity 3      against E01 Utility Processors
31691      Severity 2      against E01 Reliability
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31707      Severity 3      against E01 Utility Processors
31710      Severity 3      against E01 Utility Processors
31712      Severity 3      against E01 Utility Processors
31720      Severity 3      against E01 Utility Processors
31740      Severity 2      against E01 Utility Processors
31750      Severity 2      against E01 Communications ·
31769      Severity 3      against E01 File Maintenance
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4.0   RELEASE CONTENTS

4.1   FOO RELEASE TAPES - 707000-26/46/66

Three single volume FSAVE tape sets contain all the input
necessary to generate a CP-V FOO system. These tapes
contain the following accounts which will be described
separately.

FSAVE tape SN#00F0 contains the following accounts:

    :FOOBO   Relocatable binary
    CPVPROC   Standard processor load modules

FSAVE tape SN#00F1 contains the following accounts:

    :FOOCI   Compressed source
    :SYSRT   Real Time Library
    CDBGLIB   COBOL Debug Library
    COBLIB   COBOL Library
    RPGLIB   RPG Library
    SORTLIB   SORT Library

FSAVE tape SN#00F2 contains the X account. The X account
consists of non-supported utility programs.

4.1.1   :FOOBO

Binary files for all CP-V modules. In addition, all load
modules and control files needed to perform an FOO SYSGEN
are included. The files whose names begin with '$$' are
load modules used during SYSGEN. Files whose names begin
with '$' are control files used during SYSGEN. All CP-V
assembly SYSTEMS (BPM, RTPROCS, etc.) are included here in
compressed format. Also included on the FOO release binary
tape are the modules MPC9210 and MPC9310 - the firmware for
the MPC disks and MPC tapes.

DATADEF is included in :FOOBO for assembling the module PART
in the CONTROL processor. This is not a standard CP-V
release element and no development support of DATADEF is
implied.

4.1.2   CPVPROC

FILE NAME	VERSION	DESCRIPTION
$:STDDEF		Standard DEF file for AP
$:STDMET		Standard DEF file for META
:BLIB	G08	Non-shared library for LINK
:LIB	G08	Non-shared library for LYNX or LOAD
:PO	G08	Shared FDP library - REF's/DEF's
:POO	G08	Shared FDP library - Code
:P1	G08	Shared library - REF'S/DEF's
:P11	G08	Shared library - Code
:P4	G08	Shared real-Time library - REF's/DEF's
:P44	G08	Shared Real-Time library - Code
ANSFORT	B08	ANSI FORTRAN Compiler
AP	C01	AP Assembler
APL	D05	APL Processor
APLTRMSB	D05	Translate table for APL
BASIC	D03	BASIC Processor
CDD6	A01	OLTEST ROM (Note 2)
COBOL	F03	COBOL Compiler
CRPD	A01	OLTEST ROM (Note 2)
EASY	B02	EASY Subsystem
ERRNOTES	C00	RPG (Note 1)
FLAG	D00	FORTRAN Compiler (Note 1)
FORT	F02	Extended FORTRAN Compiler
JIT		(Note 3)
FORTLIB	A01	System FORTLIB
MERGE	F03	MERGE Processor
METASYM	H01	METASYMBOL Assembler
MPCD	A00	OLTEST ROM (Note 2)
MSMT	A04	OLTEST ROM (Note 2)
NSLP	A03	OLTEST ROM (Note 2)
OLMON	A02	OLTEST ROM (Note 2)
RDC6	A01	OLTEST ROM (Note 2)
RMC6	A01	OLTEST ROM (Note 2)
RMP6	A02	OLTEST ROM (Note 2)
RPG	C00	RPG Processor (Note 1)
SILP	A01	OLTEST ROM (Note 2)
SIML		1400 Simulator (Note 1)
SIMT	A01	OLTEST ROM (Note 2)
SORT	F03	SORT
TAPECVT		SIML Tape Converter
TEXT	XC0	TEXT (Note 1)

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1. These processor file names were excluded from the $DEFJOB file and should be added to the :INCLUDE cards if desired on the PO tape.

2. These ROM's are used to load the program OLTEST for CP-V on-line Diagnostic Programming System (on-line DPS). For further information refer of document number 706497-11A02.

3. In past versions of CP-V this ROM was included for sites that did not want to include password scrambling. This copy of JIT has the ADEF SEED = 0, i.e., password scrambling is disabled. If a site wants password scrambling disabled in F00, follow the procedure in Step 9, Sec. 5.4. This ROM is included only for those sites which for some reason can not follow the new procedure. The SEED specified in F00 is the same as the value for E01 and E00; if password scrambling is currently in use, no change is required unless SEED was changed from its previous value.

4.1.3   :F00CI

Compressed files for all CP-V modules. DATADEF is included in :F00CI for assembling module PART in the CONTROL processor. It is not a Standard CP-V release element and no development support of DATADEF is implied. SUM is a compressed ANSFORT source file.

4.1.4   :SYSRT

Account :SYSRT contains the following files which make up the Real-Time library:
        :BLIB   :LIB

4.1.5   CDBGLIB

Account CDBGLIB contains the following files which make up the COBOL DEBUG library:
        :LIB   BLIB: C:DBGR

4.1.6   COBLIB

Account COBLIB contains the following files which make up the COBOL library:
        :LIB   BLIB: S:SRT

4.1.7   RPGLIB

Account RPGLIB contains the following files which make up
the RPG library:

    :LIB   RLIB:

4.1.8   SORTLIB

Account SORTLIB contains the following files which make up
the SORT library:

$::BSORT	CTSRTP01	SROOT
$::CSORT	CTSRTP1	SRP
$SRT:STD	CTSRTP11	SRPO
CROOT	CTSRTP2	SRPO1
CRSRTP	CTSRTP3	SRP1
CRSRTPO	CTSRTP31	SRP11
CRSRTPO1	LOCCTBMERGE	SRP2
CRSRTP1	LOCCTBSORT	SRP3
CRSRTP11	MERGEINA	SRP31
CRSRTP2	MERGEINB	SSP
CRSRTP3	MERGEJCL	SSPO
CRSRTP31	MERGEO	SSPO1
CRTPRE	S:DCB1	SSP1
CSRTDCBS	SORTINFO	SSP11
CSRTMRGE	SORTJCL	SSP2
CTSRTP	SORTTEST	SSP3
CTSRTPO	SPRE	SSP31

4.1.9   X

Account X contains a set of utility programs which are not
supported, but which are used by Development Programming and
tend to be useful to CP-V installations. The source for
each program is included so that improvements or
modifications can be made by an installation. All of the
load modules created have (READ,NONE),(EXEC,ALL). Some
files in account X which are particularly useful are these:

JOBMNSTK   This file should be batched (with the E option)
                  after a new system is generated in order to
                  reload those programs in account X which load
                  with MONSTK.

JOB   This file can be batched (with the E option) to
                  compile and load all of the programs in account
                  X.

HELP   The HELP program will describe each program in
                  account X and give information about the use of
                  each program. For information on how to use
                  HELP, call it and type ?.

VIP   These ROMS supply the user with Fortran-callable routines that give the user cursor control on Honeywell VIP 7200 terminals.

FUTILITY   A file maintenance utility similiar to ELIXER. Special capabilities include CLOSE with Rename/Attribute abilities and the ability to examine keyed files (with KEYM not 3) in hex.

LIBXREF   A program which examines library load modules or ROM libraries and prints a cross-reference listing of the REF's and DEF's.

MOD   A program to modify files using M:CLOSE with RENAME feature, accepting commands in a PCL-like format.

9$CSEINFO   This file tells how to use 9$CSE9CI which will allow a large Sigma 9 mono-processor with core memory to handle intermittent parity errors. It narrows core errors down to the affected user and logs only that user off. If the affected user is RBBAT, ALLOCAT, or KEYIN, a crash results. A monitor I/O parity error results in a crash. It presents a readable message on the operator's console which will show failing bits and LMS status words, depending on the severity of the problem. This file is not affected by JOBMNSTK.X and not compatible with DUMP.X.

DMPQ   This program will 'spill' the symbiont queue to a labeled tape (or tapes).

RESQ   This program will 'fill' tapes produced by DMPQ back into the symbiont queue.

DUMP   This is a stand-alone program to perform a console dump after a CSE stop. It is intended to be booted from cards or from a tape.

4.2   707000-11 Program Description

This document contains a description of the new features of CP-V F00, a list of SIDR's closed, SYSGEN procedures, release contents, etc.

4.3   707000-76 Quality Assurance and Control Test Tape

The QUAC Test Tape contains the CP-V FC0 Test Case Library. Section 10.0 of this document describes the test procedures. The QUAC Test Tape is an FSAVE tape with an INSN=00A0 and several accounts including C7308398, C7308399, CONTROL, and :TSS.

4.4   707000-56 Compressed Listing Tape

The compressed listing tapes contain listings of all
supported modules of CP-V; the tapes, which represent the
contents of the :FOOLO account, also contain the CP-V FOO
technical documentation.   There are four single volume tapes
in the set, all created under PCL; three contain the
listings and the fourth contains the technical
documentation.

The contents of the first three tapes are:

      SN/ACCOUNT   CONTENTS

      FOLO.:FOOLO   Files APPL to FRGD
      FOL1.:FOOLO   Files FSAVE to RDF
      FOL2.:FOOLO   Files RDL to 7TAP

The fourth tape is SN#FOL3, account :FOOLO. This tape
contains a group of files used to produce the technical
documentation that is also released on the microfiche.
These files are made available to the user to produce
documentation tailored to his needs. Included are the
EXTRACT load module, its compressed source and the complete
CP-V FOO comment data base. See Appendix A for instructions
on the use of EXTRACT:

            $$EXTRACT   The documentation program load module.
            $$EXTRACTCI   Compressed source for EXTRACT
            $$DB   The complete FOO data base for
                               EXTRACT as taken from :FOOLO.

Also included is a series of control files which can be used
with EXTRACT to produce reports of special interest. These
reports are included on the microfiche but not on the
listing tapes.

$CCI	All CCI modules
$CENTSYS	Central system modules
$DEBUG	Debug modules
$DISKFM	File management modules
$FILEMAINT	FILL,FSAVE,FRES
$HANDLER	Handler modules
$INITREC	Initialization and recovery modules
$LOADER	Loader modules
$PCL	PCL modules
$REMOTE	Remote processing modules
$SYMCOOP	Symbionts and cooperative modules
$TAPEFM	Tape file management.

4.5   707000-59 Microfiche

This element consists of the listings of all CP-V modules as
well as technical documentation produced from the listing
commentary by the EXTRACT processor.

A cross-reference listing (XREF) of all REF's and DEF's in
the monitor is also included on the microfiche.

The CP-V F00 microfiche is not included in the standard
release contents. It may be ordered separately from
Honeywell Publications Services in Brighton, Massachusetts,
referencing Honeywell order number XU21.

4.6   707000-86 Starter PO Tape

This is a bootable PO tape for sites without CP-V currently
running. This system is a minimal system and is designed to
do an initial SYSGEN only. See Section 5.4 of this document
for further explanation.

5.0   SYSGEN CONSIDERATIONS

5.1   Introduction

This section describes changes to the SYSGEN processors for
FOO and the step by step procedures to follow to build an
FOO system.

5.2   PASS2 Changes

5.2.1   MPC Tape Changes

The PASS2 command to include MPC tapes in a system is the
:DEVICE command.

Model numbers for MPC tape devices are 9313 and 9314. The
controller is a 9310. Default values supplied by PASS2 for
MPC tapes are:

                T   TAPE
                DD   DUAL DENSITY
                R   READ REVERSE
                IO   INPUT and OUTPUT

5.2.2   Other MPC Changes

The :HANDLERS2 command is no longer a PASS2 requirement for
sites with an MPC, either tape or disk.

The unit address of an MPC device cannot be 0 (zero).

5.2.3   SYSGENing tape devices

Two precautions must be observed when defining (via :DEVICE
commands) the tape device configuration for a target system.

First: if the target system is to include tape drives with
differing physical characteristics (e.g., NS and MPC tape
drives), each type of physical device must be defined as a
separate resource. Disobeying this restriction (e.g., by
defining both MPC and NS tape drives as '9T' drives) can
cause the device handlers to attempt to perform
unimplemented functions on some of the drives.

Second: the tape drives that are to be considered the
default tape resource must be the first units defined.

5.2.4   Level 6 Front End

The :COC command has a new option to accommodate Level 6
code. The option is:

L6   Specifies that the preceding COC keyword and all
      subsequent options pertain to a Level 6 Front End
      Processor. Only two L6 options may be specified.

One additional double word has been added to the M:COC load
module for non-L6 systems. For L6 systems, 16 additional
words will be generated for each L6 specified.

5.2.5   Other

To provide working space for the deferred I/O feature, three
new DCT tables have been added; these increase the size of
each device's DCT table entry by one halfword plus two
bytes.

5.3   PASS3 Changes

The Loader has been changed to flag as zero severity DOUBLE
DEFs any DEFs in a ROM that are also in a library associated
with the load module. This change will result in the
appearance of several doubly-defined symbol diagnostics in
system programs loaded with :MONSTK (RBBAT, for example)
that did not appear in previous systems. This is not cause
for concern.

5.4   How to SYSGEN CP-V F00

CP-V F00 may be generated under any currently supported CP-V
system. If a 64K system does not have enough core
available, the F00 starter system may be used as the host
for doing the SYSGEN. The starter system will run on any
standard CP-V configuration that contains Xerox disk systems
(3275, 7240, 7270, or 7275 disk systems). All of the F00
processors required to do a SYSGEN are in the :F00B0 account
and will be executed from there; processors in the :SYS
account of the running system need not be replaced. Note:
the F00 starter system has limited capabilities and is not
recommended as a "model" system.

All of the control files needed to perform a SYSGEN are
included in the :FOOBO account with names beginning with
"$". Files whose names begin with "$$" are load modules
used during the SYSGEN. A PCL range copy may be used to
obtain listings of all job control files and sample PASS2
command files, e.g.,

        COPYALL DC.:FOOBO/$A,$9 TO LP(K)

The control files in :FOOBO are:

$SUPERJOB   Job that authorizes the :FOOSGEN,CPV account
               for running the SYSGEN jobs.
$LOCCTS   Job that builds the FOO LOCCT tables for
               SYSGEN PASS2.
$INSERT   EDIT XEQ file to be used when doing a SYSGEN on
     ṭ   a system which does not have communication
               equipment for timesharing.
$PATCH   Pre-release FOO patch file. It is superseded
               by the FOO patch files on SST tapes.
$P2BIG9   PASS2 job for a Sigma 9 with a 7212 rad swapper
               and 512K MOS memory.
$P2DUALBIG9   PASS2 job for a dual Sigma 9 with 7212 Rad
               swapper and 512K MOS memory.
$P2DUAL560   PASS2 job for a large dual 560 multi-processing
               system with dual access MPC disks, and remote
               processing.
$P2DUAL7   PASS2 job for a dual Sigma 7 with MPC tapes
               and MPC disks. It also has Real-Time.
$P2MINI   The PASS2 job which was used to create the FOO
               starter PO tape.
$P2NOCOC   PASS2 and LOCCT job for a Sigma 5 system that
               does not have timesharing (COC) capability.
$P2SIG5PAK   PASS2 job for Sigma 5 with a 7270 pack swapper,
               MPC disk drives, and real-time.
$P2SIG5RAD   PASS2 job for Sigme 5 with a 7232 RAD swapper,
               MPC disk drives, and real-time.
$P2SIG9RAD   PASS2 job for a Sigma 9 with a 7212 Rad swapper.

$GENJOB1   Job that copies required files into the SYSGEN
              account, performs initial PASS3 (loads), and
              batches $GENJOB2.
$GENJOB2   Jobs that performs the remaining PASS3s and
              create the sorted symbol table for the analyze
              processor.
$DEFJOB   Job that writes two PO tapes.
$XREFJOB   Optional job that produces a cross-reference of
              the M:MON load module. Use requires that the X
              account be restored.
$GHOSTSI   Control file for running STATS as a ghost.
$ALISTFILE   FOO control file used to BATCH assemblies with
              METAFUM.
$ERRTEXT   FOO file of error message text records.

Additionally, the :FOOBO account includes the following
special files:

MPC9210/MPC9310   The MPC9210 and MPC9310 files contain
                         firmware for the MPC's in the CP-V
                         library load module format for direct
                         use in the M:MON PASS2. These files
                         are the default firmware selected when
                         $GENJOB1 is executed. Both files are
                         from Rev. AJ of the Firmware Tape that
                         is distributed with each MPC
                         controller.

                         MPC9210 firmware was built by the
                         FIRMLDR program from the XER1,REV. B1
                         (02/28/78), segment of the
                         MSP450AA1-0A firmware.

                         MPC9310 firmware was built by the
                         FIRMLDR program from the M601, Rev. G1
                         (02/16/78), segment of the
                         MTP601AA1-0A firmware.

DEVDMP   DEVDMP is a stand alone program that
                          will make a device copy of any Xerox
                          RAD, Xerox disk pack, or MPC disk on
                          magnetic tape. Read section 1.2.4, as
                          there are new Sense Switch options. A
                          description of DEVDMP is in the CP-V
                          Operations Reference Manual 901675.
                          To make a bootable copy use the
                          following commands:

     {online}   !SET F:BOOT FT#BOOT-9T
                          !RUN DEVDMP.:FOOBO,MPC9310.:FOOBO

                               or

     {batch}   !SET F:BOOT FT#BOOT-9T
                          !LYNX DEVDMP.:FOOBO,MPC9310.:FOOBO
                          !RUN

Perform the following steps to do an FOO SYSGEN.

Step 1 - (optional) The FOO starter tape has the following
                      device addresses assigned:

NAME	ADDRESS	MODEL	
TY	A01	7012	
LP	A02	7441	
LP	A06	3465	(NS or 7446)
CR	A03	7122	
9T	B80	7323	(Wang)
9T	B90	7323	(Wang)
XT	DF1	7333	(Potter)
XT	DF2	7333	(Potter)
ZT	AC0	3345	(NS)
ZT	AC1	3345	(NS)
BT	BE1	9314	(MPC)
BT	BE2	9314	(MPC)
DP	ACE	9210	(MPC)
DP	ACF	9210	(MPC)
DP	AE0	7271	
DP	AE1	7271	
ME	A05	7611	

          Prior to booting the starter PO tape prepare the
          :TYPE cards which will change the configuration
          to the appropriate addresses. It is recommended

that :TYPE cards be used for each device type
available and that the complete starter system
configuration be defined without using the :SAVE
command.

Example 1 - Reconfiguration Deck for Starter
Tape on a 560:

```
          :TYPE   TY7012,A01
          :TYPE   LP3465,A02
          :TYPE   CR7140,A03
          :TYPE   9T3345,A80,A81
          :TYPE   DP7271,EF0,EF1
          :TYPE   ME7611,A05
          :END
          *
          !EOD
```

Note that the :TYPE card for the disk devices
specifies 7271, even though the device is
actually a 3275. This is because the system was
SYSGENed for 7271 disk devices. Special code
enables a 7271 pack swapper system to boot on
any kind of disk drive. In this system it is
normal for the message "HGP TRUNCATED - TOO BIG
FOR ALLOCATION DATA" to be typed on the
operator's console during system initialization.

. Boot the starter PO tape, keying in 'IPFTC' on
  request. Do not use XDELTA.

Change the address of the swapper, card reader, and
printer (if necessary):

```
          C/LL/DC ASSIGN OK (YES/NO)    NO
          CRA03 = CRndd
          LPA02 = LPndd
          DPAE0 = DPndd
```

Step 2 -   From the operator's console, initiate FRES as a
      ghost job (!GJOB FRES) and enter the following commands:

```
          +VOL
          00F0
          +SELECT
          :FOOBO
          CPVPROC
          +END
```

This will restore all files necessary to perform the
target SYSGEN.

Keyin !ONB 1 at the operator's console.

Step 3 -   LOGON under :SYS,LBE and BATCH the
            $SUPERJOB.:FOOBO This will create the :FOOSGEN,CPV
            account. The target SYSGEN will be performed in
            this account.

Step 4 -   If there are to be no MPC's in the target system
            remove the following from $GENJOB1.:FOOBO (lines 9
            and 10)

            COPY MPC9210.:FOOBO OVER MPC9210   (copies in
                                                disk firmware)

            COPY MPC9310.:FOOBO OVER MPC9310   (copies in
                                                disk firmware)

            If there is one MPC in the target system, remove
            just the appropriate COPY command.

Step 5 -   LOGON to account :FOOSGEN,CPV and BATCH
            $LOCCTS.:FOOBO. This job will create all the needed
            LOCCT's in account :FOOSGEN. The LOCCT for SUMMARY
            specifies UNSAT(CPVPROC); if that account is not
            restored, the LOCCT must be modified to point to the
            account which contains the copy of :LIB.

Step 6 -   In account :FOOSGEN, copy the PASS2 control file
            from :FOOBO which most closely matches your
            installation. Use EDIT to modify the file to match
            the installation. Either BATCH the job or run it
            on-line. Verify the results.

            Check the output from the PASS2 jobs for any fatal
            diagnostics or unexpected warnings.

Step 7 -   In account :FOOSGEN, BATCH $GENJOB1.:FOOBO. This
            GENJOB will terminate by batching a subsequent
            GENJOB. Verify all the GENJOB output.

Items to watch for:

- o
    The end of the monitor root (which is
    mapped one to one) must be below the
    beginning of the monitor overlays
    (X'8000'), and the top of the unmapped
    monitor root must lie below the
    monitor JIT. Examine the M:MON map
    produced by PASS3 - the symbol
    SUSPTERM must have a value of X'7FFF'
    or less, and the symbol TOPROOT must
    have a value of X'8BFF' or less.

- o
    Each monitor overlay (with the
    exception of UMOV, MPC9210, and
    MPC9310) must be less than 3K in size
    - the ending value for the overlay
    must lie at or below X'8BFF'.

- o
    There will be one severity 4 error in
    TPG due to 5 doubly defined symbols.

- o
    There will be 11 PREFs in MOOSE on
    mono-processor systems.

- o
    There will be 3 PREFs in RBBAT on
    non-remote-processing systems.

- o
    There will be 1 PREF in GHOST1 on
    systems not SYSGENed for MOS memory.

Step 8 -   At this point, the :F00SGEN account will contain
everything necessary to generate a CP-V F00 PO tape.
If other processors are desired on the PO tape by
installations, they should be added to the $DEFJOB
INCLUDE list and !ASSIGN F:INCLUDE account list
prior to DEFing the tape. (Note: All pre-B00
loaded processors and user programs must be reloaded
before they will execute under the F00 version of
CP-V).

Step 9   - If the installation desires the patch deck to be
included on the PO tape, restore the F00 patch file
from the most recent SST tape to the :F00SGEN
account. EDIT the file $DEFJOB to include an ASSIGN
command at lines 4.5 and 19.5:

    !ASSIGN M:PATCH,(FILE,filename)

In account :F00SGEN, BATCH $DEFJOB.:F00B0. This
will create two PO tapes with serial number CPF0.

The mechanism for setting the ADEF SEED=0 has been
modified. If the site desires to have ADEF SEED=0
then the following GENMD's must be added to the
site's patch deck:

    GENMD CCI
    :GENMD SCRSEED,0.
    GENMD LOGON
    :GENMD SCRSEED,0.
    GENMD SUPER
    :GENMD SCRSEED,0.
    GENMD TEL
    :GENMD SCRSEED,0.

$DEFJOB uses 9T as the resource type for the PO
tape. If the site does not have 9T's, use EDIT to
change lines 2, 4, 17, and 19.

Step 10 -   After booting the new CP-V PO tape, restore the
library accounts from FSAVE Tape 00F1. Also restore
account X from 00F2. See Section 4 for the
libraries supplied with the system.

5.5   How to do a SYSGEN on a COC-less System

EDIT, BATCH, and FRES are to be run as ghost jobs from the operator's console.

Step 1 -   See Step 1, Section 5.4 for instructions on booting the starter PO tape. In addition, if the starter tape is used add a reconfiguration command to partition out the COC (i.e., :REMOVE A05).

Step 2 -   Same as Step 2, Section 5.4.

Step 3   a) BATCH $SUPERJOB.:FOOBO. This will create the :FOOSGEN account.

b) !GJOB EDIT. Enter the command "XEQ $INSERT.:FOOBO". This will insert the proper account number, name, and priority fields into the !JOB commands in the files to be executed in the following steps.

Step 4 -   Same as Step 4, Section 5.4.

Step 5 -   BATCH $LOCCTS.:FOOBO. Note Step 5, Section 5.4

Step 6 -   Select the PASS2 control job $P2NOCOC.:FOOBO and, using EDIT, modify it to match the installation desired. Modify the !JOB command so that the job will run in the appropriate SYSGEN account (i.e., :FOOSGEN,CPV). Note that the file contains a modified LOCCT for M:MON, the CP-V monitor. BATCH $P2NOCOC.:FOOBO and verify the results; check the output from the PASS2 for any fatal diagnostics.

Step 7 -   BATCH $GENJOB1.:FOOBO. Verify all the GENJOB output; also note the error messages in Step 7, Section 5.4.

Note that the symbol COCII will not be found by SYMCON when library :J3 is built.

Step 8 -   Same as Step 8, Section 5.4.

Step 9 -   BATCH $DEFJOB.:FOOBO. If the installation desires to include the patch deck on the PO tape or to set ADEF SEED=0 see the instructions in Step 9, Section 5.4.

$DEFJOB uses 9T as the resource type for the PO tapes. If your site does not have 9T's, use !GJOB EDIT to change lines 2, 4, 17, and 19.

Step 10 -   Same as Step 10, Section 5.4.

6.0   INCOMPATIBILITIES

Files dumped via Spill/Fill under previous versions of CP-V
are not compatible with CP-V F00.

7.0   RESTRICTIONS / KNOWN PROBLEMS

The patch file on the release tape contains a patch (for
SIDR 31611) which has an undesirable side effect. If this
patch file is used, systems SYSGENed for MOS memory will be
unable to perform a successful power failure recovery
sequence - the system will crash with a Software Check 7E-40
when the Power On interrupt is triggered. The October 1978
Software Support Tape contains a corrected version of the
patch for SIDR 31611 that will not cause this problem.

The print-across-the-perforation feature of !LDEV (and
M:LDEV) described in section 1.2.16 does not always function
properly when the output stream is directed to a remote
workstation's line printer. For it to function properly,
two !LDEV commands must be issued:

```
!LDEV L1,(DEV,LP),(WSN,wsn)
!LDEV L1,(ASAVE),(LINES,0)
```

The (LINES,0) specification will be ignored if placed on the
first !LDEV command, and the default lines-per-page
specification for the requested device will be used.

8.0   MAINTANENCE PROCEDURES

8.1   Patch Deck

In CP-V, corrections to problems are implemented by means of patches. These patches are distributed monthly to field offices on the System Support Tape (SST). The file FOOPATCH contains a current set of FOO patches; each patch contains the SIDR number, patch date, and card sequence number. New patches are also added to the CHRONO-FOO file, which contains all FOO patches (including old versions that may have been superceded) in reverse chronological order. All patches in the FOOPATCH and CHRONO-FOO files have been tested in a production environment. The first FOO patch files are available on the October 1978 SST.

8.2   Problem Reporting

Difficulties encountered in CP-V FOO should be reported through the SIDR system. Use of the SIDR system is described in the PAL (Program Availability List) Manual.

The system catalog number for CP-V is 707000. Program catalog numbers to be used in submitting SIDR's should reflect the following functional areas:

Program Catalog Number	Area Name	Included Functions
707001	File Maintenance	BACKUP/FILL, FSAVE/FRES
707002	File Management	All File Management functions for public and private files, ALLOCAT and file inconsistencies.
707003	System Management	Scheduler, STEP, Memory Management, Swapper, IOQ, device handlers, SEGLOAD, LDLNK, RBBAT, GERM, and Real-Time
707004	Communications	COC and Remote Processing
707005	Recovery	RECOVERY, ANLZ, FIX
707006	Software Checks	All software checks
707007	Operator Comm.	KEYIN'

707008	SYSGEN	PASS2, PASS3, LOCCT, and DEF
707009	Debug Tools	DELTA, XDELTA, PMD, snaps and user dump facilities
707010	Loaders	LOAD and LYNX
707011	Symbionts	Symbionts, streams, cooperatives, and LDEV
707012	Acctg. and Perf.	SUPER, ACCTSUM, LOGON, RATES, CONTROL, STATS, and SUMMARY
707013	Monitor Services	PROC's and miscellaneous CAL's
707014	Initialization	SYSMAK, GHOST1, DRSP, RECONFIG, and SYSCON
707015	Reliability	ELLA, ERR:FIL, error logging
707016	Command Proc.	CCI and TEL
707017	Utility Proc.	PCL, EDIT, DEFCOM, SYMCON, ERRMWR, and online VOLINIT
707018	Miscellaneous	Error message file, Mailbox, and JIT
707019	Transaction Proc.	TP Terminal control, TP Queue initialization, management, and recovery
707020	Front End	L6G

9.0   MONITOR SIZING

9.1   General Memory Requirements

The optional features of CP-V F00 are listed below with
their resident monitor core requirements.

IRBT	IRBT Support	3 pages + 1 page {1} per IRBT device
	2780/3780 & IRBT support	4-1/2 pages + 1 page {1} per 7605 device
	7670 & IRBT Support	4-1/2 pages + 1 page {1} per IRBT device
	2780/3780 & 7670 & IRBT support	5-3/4 pages + 1 page {1} per IRBT device
	2780/3780 support	2-1/2 pages + 1/2 page (2780) or 1 page (3730) per 7605 device
MP	Multi-Processing Support	1-1/2 pages + 1 page per active slave CPU
TP	TP modules	2-1/2 pages
	Additional for Message mode lines	1-1/2 pages + 1 buffer page {2} per line
	Additional for Queue	5 pages {1}
	Additional for TIC and TPC modules that may be temporarily locked in memory during processing	2-5 pages
RA	Read Ahead	1 page
	For table size, see RASIZE description of :IMC option.	
RT	Real-Time modules	1-1/2 pages

	Additional for RESDF	# of pages specified during SYSGEN
	Additional for DYNRESDF	# of pages specified during SYSGEN {3}
S5SIM	Sigma 5 Instruction Simulators	2 pages

{1} These pages are subtracted from the maximum possible
user size, but not from the available swap space when the
line is not logged on. Note that on large-memory systems
the maximum user size is not affected by the loss of these
pages as it is limited by other factors.

{2} These pages are required only when TP is active.

{3} These pages are subtracted from the maximum user size,
but are not actually acquired until they are needed.

9.2   Monitor Table Sizes based on SYSGEN parameters

Keyword

:SPROCS   9-1/2 words per shared processor entry
               + 1/2 word per entry if disk pack swapper
               + 1/2 word per entry if (BIG) specified
               (Maximum 10-12-1/2 words per entry)

:IMC   1 word per physical work page {1}
               8-1/4 words per user (n+m+p) (MAXOL,n) + (MAXB,m)
               + 4-1/3 words per ghost job + (MAXG,p)
               22 words initially + 3 words per entry (RASIZE,n)
               + 1/4 word per entry if (BIG) specified

:COC   4 words per buffer (BUFFERS,n)
               7 words per line (LINES,n)
               1 word per buffer (RING,n)
               4 words per ECB (ECB,n)
               96 words per Translate Table
               1 byte per COC line (COUPLE)

:MON   2 words per entry (ENQ,n)
               34 words per MPOOL (MPOOL,n)
               40 words per CPOOL (CPOOL,n)
               9 words per IOQ (QUEUE,n)
               19 words per CFU (CFU,n)
               Patch space (n words) (MPATCH,n)
               1/4 word per physical page (CORE,n)
               + 1/4 word per physical page if (BIG) specified
               (m-X'62') words (ORG,m)
               308 words for Sigma 9 traps (SIG9)
               444 words for X560 traps (X560)
               45 words for Sigma 7 traps (SIG7) or (SIG6)
               2 pages for S5SIM (SIG5)
               1961 words for MINICOC (MINICOC)
               2718 words for COC (neither (TP) nor (MINICOC))
               3119 words for TPOC (TP) {1}

:INTBL   1-1/4 words for every label (label,n,m)

:FRGD   12 words per entry (NINT,n)
               See RT size for RESDF and DYNRESDF

:SCPU   7 words per CPU {2}

{1}   TP systems only.

{2}   MP systems only.

Keyword

:CHAN   2 words per CHANNEL (CIT entry)

:DEVICE   16 words per DEVICE (DCT entry)
             + 3-1/2 words per tape device (AVR tables)
             + 3-1/2 words per (PRIV) disk pack (AVR tables)
             + 8 words per public RAD or pack (HGP tables)
             + n words per private pack

             n = 20 for 7274
                 20 for 7271
                 35 for 7275

             assuming default
             logical cylinder sizes

             + 5 words per RBT device
             + 7 words per RAD or disk pack model
             + 7 - 74 word CLIST per device

             PUNCH = 74 words
             DP   = 12 words
             other = 6-8 words

             non-standard device-variable

             + 4 words per non-standard device type

:RES   1/2 word per specified RES
             + 6-1/4 words per RES option
             + 1/4 word per ((RES option) * (number of partitions))

:PART   6-3/4 words per partition

:LDEV   3/4 word per entry

:OPL   1-1/4 words per non-standard entry

:SDEVICE   3 words per symbiont device
             + (4-1/2 words) * (MXSTRM value) {1}

{1}   TP systems only.

10.0 CP-V FOO TEST PROCEDURES

10.1 The Test Tape

The QUAC TEST tape (707000-76F00) is an FSAVE tape, INSN
00A0, containing the FOO test case library in account
C7308398 and $$$$FILL. The test case library consists of
job sequences and the files necessary to run them. Test
cases are organized in groups which exercise a particular
area of the system. These groups are described below.

88TPDMS	TP-DMS Sample Application
88TPSIM	TP-Simulator Tests
88TPTIC	TP-TIC/Queue Tests
88TPTPC	TP-TPC/Queue Tests
88TPPFM	TP-Performance tests
99GROUP1	General Exerciser
99GROUPEB	Job Step Control
99GROUPEE	Multibatch Scheduler (partitions)
99GROUPEE1	Multibatch Scheduler (resources)
99GROUPG	Swapper
99GROUPGA	LDEV
99GROUPIA	Monitor CAL's
99GROUPID	Shared Processors
99GROUPJ	File Management
99GROUPJA	ANS Tapes
99GROUPJB	Private Pack Tests
99GROUPKA	BACKUP, FILL, PURGE
99GROUPLH	DRSP
99GROUPNQ	ENQUEUE/DEQUEUE
99GROUPPA	CCI
99GROUPPQ	SUPER, CONTROL, SHOW
99GROUPRB	LOADER
99GROUPRMA	SYSCON/RMA
99GROUPRP	Restricted Processors
99GROUPRT	Real Time
99GROUPSA	PCL
99GROUPSC	BATCH
99GROUPT	Language Processors

A file 'LIBLIST' on the QUAC TEST tape contains the names
and descriptions of the individual tests within each group.
The test cases are identified by using the test name as the
extended accounting information of the !JOB command. Tests
that should abort are designated as such in the 'LIBLIST'
file.

Most test cases are self-sufficient and rely on operator
intervention only for tape mounting and key-in responses.
Where operator intervention is required (as in the TP and RT
tests), comprehensive instructions are displayed on the
operator's console.

10.2   Use of the Test Tape

The following job is used to restore the QUAC TEST tape
library, to authorize accounts, and initialize the system
controls.

```
!JOB :SYS, LBE, 7
!LIMIT (9T,1), (CORE, 50)
!FRES
+VOL
00A0
+END
!BATCH 99QUAC.C7308398
!FIN
```

Due to the special system control parameters necessary for
certain tests, only one group should be run at a time. A
group is entered into the batch stream with a

```
!BATCH groupname.C7308398
```

command. For example, to enter the PCL test cases use:

```
!JOB :SYS,LBE,7
!BATCH 99GROUPSA.C7308398
!FIN
```

Test cases can be run selectively from within groups by
using the DUCK program on-line. A description of how to use
DUCK is in the file 'DUCKHELP' on the QUAC TEST tape. To
run DUCK, copy it from account C7308398 into account :SYS
and then !DUCK will start the program on-line.

10.3   Updating the Test Tape

Test cases can be added or deleted by editing the relevant
88 or 99 GROUP. See the Time-Sharing Reference Manual
(90-09-07) for Edit procedures. A new test tape can be
generated by the following commands:

```
!JOB :SYS, LBE, 7
!BATCH QUAC.C7308398
!FIN
```

Some tests require processors and libraries which are not
distributed with the CP-V releases. A list of the
processors and libraries included in the F00 release can be
found in Section 4. The installation can create a test tape
containing all necessary processors by restoring the QUAC
tape under its present system and running the following
(sample) job:

```
!JOB
!LIMIT (9T,1)
!MESSAGE **USE OUTPUT TAPE #XXXX, RING IN**
!FSAVE
+DUMP
+VOL
00A0
+SELECT
$$$$FILL
:SYS DICTNARY (required for MANAGE)
:SYS DMSDUMP
:SYS DMSINIT DMS Modules
:SYS DMSLOAD
:SYS EDMSDUMP
:SYS EDMSFDP
:SYS EDMSINIT   EDMS Modules
:SYS EDMSLOAD
:SYS EDMSSUMS
:SYS FILEUP  (required for MANAGE)
:SYS MANAGE
:SYS REPORT  (required for MANAGE)
:SYS RETRIEVE  (required for MANAGE)
C7308398
COBLIB
DMSLIB
EDMSLIB
+END
```

Appendix A

XTRACT

EXTRACT is a processor designed to produce tech manual type
documentation and reports using specially formatted comments
embedded in the assembly listings. These special comments are all
comment lines with a code letter in column two and asterisks in
columns one and three as well as all REF's, DEF's and SREF's that
have a non-blank comment field. A *,* is used for continuation.

The codes are:

        M   A one line description of each module.

        P   A paragraph or two describing in brief the purpose
                       of a module and giving an overview of its operation.

        F   A brief description of each major function within a
                       module.

        D   A detailed description of a routine in terms of such
                       things as register usage, input, output, interfaces,
                       etc.

        E   A description of an error condition at the point
                       where it is called.

        S   A description of a Screech Code at the point it is
                       called.

        O   An explanation of some communication with the
                       operator at the point where it is sent.

        C   A description of what has changed for this version
                       of the operating system.

        K   A description of some concept or term that is useful
                       in understanding the operation of a module.

        X   X-type comments are all REF's, DEF's and SREF's.

EXTRACT performs two major tasks; first, it collects all of the
special comments from UTILIST compressed files of the assembly
listings to form a data base, then it produces reports on the
desired modules and codes from this data base.

EXTRACT commands have the form:

COMMAND (OPTION), (OPTION)...

● The command may be continued at any point except within a word by
ending the command with a semi-colon (;). Anything after the
semi-colon will be ignored. The commands may be abbreviated to two
letters and are:

    EXTRACT   create data base from UTILIST compressed files.
                 The legal options are CODES, MODULES, DATA and
                 SOURCE (see option descriptions to follow).

    REPORT   generate a report from the data base. The legal
                 options are DATA, CODES, MODULES, SORT, ORDER,
                 HEADING, LINES and FORMAT.

    DELETE   remove specified comments from data base. The
                 smallest unit that can be deleted is all of one type
                 from one module. The legal options are DATA, CODES
                 and MODULES.

    ADD   add specified comments to an already existing
                 data base. Due to the structure of the data base,
                 it may be more efficient to EXTRACT the comments to
                 be added into a second data base and use PCL to
                 concatenate the two files. The legal options are
                 DATA, CODES, MODULES, and SOURCE.

● The options are as follows:

    o   (DATA, name, account, password) - specifies the name of
         the data base. The running account is the default.

    o   (CODES, code letter [,code letter]...) or (CODES,
         GLOSSARY) or (CODES,ALL - specifies which types of
         special comments are selected for this command. The
         legal code letters are M,P,F,D,E,S,C,K,O,X. GLOSSARY is
         used only in selecting codes for the report command and
         causes all DEF's, M's and K's to be reported. ALL is
         the default.

    o   (MODULES, name or range [,name or range]...) or
         (MODULES, EXDATA) or (MODULES,ALL) - specifies which
         modules are selected for this command. A maximum of ten
         names or ranges may be specified where a name is simply
         the name of a module and range is two module names
         separated by a dash (-), e.g., FILE1-FILE4. EXDATA
         implies that a file EXDATA exists in the running account
         and it contains a list of the modules to be used. ALL
         is the default.

    o   (SOURCE,account) or (SOURCE,LT# xxxx,account) - gives
         the labeled tape serial number and account or simply the

account of the UTILIST compressed LO files to be
searched for comments.

o   (SORT, sort parameter [,sort parameter]...) - specifies
    the order for the selected comments to be reported. The
    four legal sort parameters are:

    CODE   special comment type

    MODULE   module name

    LINE#   line number within the module

    NAME   name of the module, routine, screech
                    code or other item being described by
                    the comments.

The first parameter given is the primary sort key, the
second one given is secondary, etc. SORT is required
for all report commands.

o   (ORDER, code letter [,code letter]_) - specified the
    order in which the requested codes are to be sorted.
    The default is alphabetical (C,D,E,F,K,M,O,P,S,X) and
    any codes specified in the CODES option but not in the
    ORDER option will be ordered alphabetically after all
    those specified.

o   (HEADING, text1, sort parameter, text2) - gives a
    heading to appear at the top of each page of output.
    Text1 is a 1-8 character field that appears at the far
    left of the heading. The first four characters of the
    current value of the sort parameter that is requested
    will appear in columns 10-13 of the heading. Text2 is a
    1-80 character field that begins in column 15 and makes
    up the main body of the heading.

o   (LINES,xxx) - specifies the number of lines per page in
    the report.

o   (FORMAT, sort parameter [, sort parameter]...) -
    specifies that a top of form is to be issued when the
    value of the specified sort parameter changes.

EXAMPLES

To create a data base file named DATA..SAFE containing all comments
from all the files in the running account:

        >EX (DATA, DATA,,SAFE)

To create a data base DATA containing selected codes and modules
from UTILIST compressed files on labeled tape #LIST:

        >EX (DATA, DATA), (CODES,M,P,X),(MODULES,;
        >FILE1,FILE3-FILE7), (SOURCE, LT#LIST)