WANG

SYSTEM 2200 GENERAL UTILITIES VOLUME II

SYSTEM 2200

2200
General Utilities
Volume III

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HOW TO USE THIS MANUAL

A utility routine is a program to accomplish certain standard tasks. This manual provides descriptions and operating instructions for a number of utility routines that have been prepared for users of the Wang System 2200. All the utilities in this package are independent of any other program.

This manual is organized in the same order as the programs are recorded on the System Tape Cassette.

SYSTEM TAPE CASSETTE #

#	NAME	# BLOCKS	CALL
1.	Copy/Verify Utility Start-up	23	"COPY"
2.	Tape to Tape Copy/Verify	10	"TAPETAPE"
3.	Tape to Disk Copy/Verify	16	"TAPEDISK"
4.	Disk to Tape Copy/Verify	17	"DISKTAPE"
5.	Disk to Disk Copy/Verify	16	"DISKDISK"
6.	Sort Disk Catalog	12	"SORTCAT"
7.	Tape File List	11	"TAPELIST"
8.	Disk Sector Condense	8	"CONDENSE"
9.	1200/2200 Translation 1	15	"12/22-1"
10.	1200/2200 Translation 2	15	"12/22-2"
11.	Tape Structure List	11	"TSD-010A"
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CHAPTER 1: COPY/VERIFY UTILITY

1.1 DESCRIPTION

The COPY/VERIFY UTILITY, made up of five modules, can be used to make single copies of any or all files stored on either a tape cassette or a disk. The copy generated may be stored on either a tape cassette or a disk. Protected files are not copied, but are skipped and counted as done. Messages indicate which files are protected.

The COPY/VERIFY can also be used to verify the accuracy of copied files. In general, any discrepancy between the files causes a verify failure message and halts execution. However, if the input file is protected, the VERIFY function merely indicates an encounter with a protected file and continues to verify the next file.

The COPY and VERIFY functions can be executed independently, or sequentially under program control.

The Utility allows copying/verifying Basic Accounting System (BAS) data files as well as normal data files. (BAS data file header records contain creation dates and retention days and, therefore, require special treatment.)

Input and output may be selected under any two of the following device codes: 10A, 10B, 10C, and 10D for tape cassette; 310, B10, 320, and B20 for disk.

In the special case of output to a disk, the utility optionally performs the following additional functions:

1. Adds extra sectors to each copied file.

2. Scratches the output disk and reestablishes index and catalog areas prior to copying.

The COPY/VERIFY UTILITY is organized around a start-up module which provides for keyboard selection of input and output devices, entry of associated parameters, and automatic transfer to the proper execution module. The start-up module should always be executed first. Upon its completion, processing proceeds without operator attention.

1.2 OPERATING INSTRUCTIONS

1.2.1 PRELIMINARY NOTES TO OPERATION

Screen displays generated by the Start-Up Module request entry through the keyboard of information common to the other four modules.

After entry of information common to all modules, the appropriate processing module is automatically loaded into memory.

Tape to Tape Copy/Verify:

Remember to use an output tape of sufficient length to store all the input files.

If a BAS data file is being copied and verified, each cassette is copied and verified before the next is mounted.

Tape to Disk Copy/Verify:

This program copies files from the tape to the disk as long as there is room on the disk. If there are more files to be copied than there is space on the disk, the number of files copied is the number that fits on the disk.

Before each file is written, its name is checked against the index of names on the output disk. If a file of the same name already exists on the output disk, the file is not copied.

For BAS data files, each cassette is copied to a separate disk.

Disk to Tape Copy/Verify

You are requested to enter the size of the output tape. If the number of files on the disk exceeds the capacity of the tape, you will be requested to remove the full tape from the unit and mount another tape.

BAS1 Payroll data files of more than one volume cannot be copied with this program.

Disk to Disk Copy/Verify

The transfer of files is accomplished by read/write operations rather than by the COPY or MOVE verbs.

Before each file is written, its name is checked against the index of names on the output disk. If a file of the same name already exists on the output disk, the file is not copied.

Remember to use an output disk with sufficient free sectors to store all the input files. If there are more files to be copied than there is space on the disk, the number of files copied is the number that fits on the disk.

1.2.2 STEP-BY-STEP OPERATING INSTRUCTIONS

Turn on the equipment. Press the cassette door release button of Unit 1 (on the console). If the door does not open, press REWIND and try again. Insert the System or Source Tape Cassette. Close the door, press REWIND, touch RESET, key CLEAR, and touch RETURN(EXEC).

DISPLAYS	INSTRUCTIONS
1. READY :_	1. Key LOAD "COPY", EXEC. (EXEC signifies touching the RETURN(EXEC) key.)
2. READY :LOAD "COPY" :_	2. Key RUN, EXEC.

3.	ENTER THE NO. OF THE COPY/ VERIFY DESIRED ?-/ 1. TAPE TO TAPE 2. TAPE TO DISK 3. DISK TO TAPE 4. DISK TO DISK	3. Key 1,2,3, or 4 according to your input medium and desired output medium, EXEC.
4.	ENTER THE NUMBER OF DESIRED INPUT DEVICE ?-/ 1. 10A or 310 2. 10B or B10 3. 10C or 320 4. 10D or B20	4. Key 1,2,3, or 4 corresponding to the address of your input device, EXEC. NOTE: For the disk options, if the processing light goes on, but nothing else happens, turn on the disk unit.
5.	ENTER THE NUMBER OF DESIRED OUTPUT DEVICE ?-/ 1. 10A or 310 2. 10B or B10 3. 10C or 320 4. 10D or B20	5. Key 1,2,3, or 4 according to the address of your output device, EXEC. If you selected TAPE TO DISK or DISK TO DISK in Step 3, go on to the next step. Otherwise, go to Step 10. NOTE: If you inadvertently select the same device for both input and output, return to Step 4.
6.	ENTER THE NUMBER OF EXTRA SECTORS TO BE ADDED TO OUTPUT FILES ?--/	6. Enter the number of extra sectors to be added to each file copied to the output disk, EXEC. To enter no extra sectors, key zero, EXEC.
7.	ENTER N - TO SCRATCH OUTPUT DISK OR O - TO LEAVE CATALOG AS IS ?-	7. To scratch the output disk before writing on it, key N, EXEC, and go on to the next step. To use the catalog already on the output disk, key O, EXEC, and skip to Step 10.
8.	ENTER THE NUMBER OF INDEX SECTORS DESIRED ?__/	8. Enter the number of sectors to be in the index of the output disk, EXEC.
9.	ENTER THE NO. OF SECTORS IN CATALOG AREA ?-----/	9. Enter the number of sectors to be in the catalog area of the output disk, EXEC.

NOTE:

Be sure to allow enough sectors for all the files on the input medium, or not all the files will be copied.

10. ENTER H-NORMAL FILES OR S-BAS FILES
?_

10. If the file to be copied is a BAS (Basic Accounting System) data file, Key S, EXEC, and go to Step 16. For all other files, key H, EXEC, and go on to the next step.

11. ENTER A-TO COPY ALL FILES OR P-TO COPY PARTICULAR
?_

11. To copy all the files on the input medium, key A, EXEC and go to the next step, except for disk input go to Step 16. To copy only certain files whose names are to be entered, key P, EXEC and go to the next step.

12. ENTER THE NUMBER OF FILES TO BE COPIED/VERIFIED
?__/

12. Enter the number of files you wish to process from the input tape or disk, EXEC. If you chose all files in Step 11, go to Step 16. Otherwise, if your input is tape, go to Step 14; if disk, go on to the next step.

NOTE 1:

The number of files must be an integer from 1 to 63, or a REENTER message appears.

NOTE 2:

If you wish to copy an entire tape but do not know how many files it contains, enter 63. An ERR 49 message appears after the last file has been copied. If you then wish to verify, rerun the program, choosing VERIFY ONLY at Step 16.

13. MOUNT INPUT DISK IN UNIT XXX, KEY RETURN(EXEC) TO RESUME
?_/

13. Insert the input disk into the specified input unit, and touch RETURN(EXEC).

NOTE:

XXX is the address entered in Step 4.

14. ENTER NAME OF FILE 1
?_--------

14. Enter the name of the first file to be copied, EXEC.

15. LAST FILE NAME ENTERED = a
ENTER NAME OF FILE b
?_---------

15. Enter the name of the next file to be copied, EXEC.

NOTE 1:

"a" on the screen is the name entered in Steps 14 or 15, left justified. "b" is the number of the next file name to be entered.

NOTE 2:

If the input is disk, the files are written in the sequence entered in this step. However, if the input is tape, the sequence of the files on the input tape determines the output sequence.

NOTE 3:

For disk input options, if the file name is not in the catalog of the input disk, the message FILE NOT IN CATALOG - REENTER is displayed. Execution cannot continue until a valid name is entered.

16. ENTER 1 FOR COPY + VERIFY,
2 FOR COPY ONLY, OR 3 FOR
VERIFY ONLY
?_/

16. Key 1,2, or 3, EXEC. The appropriate processing module is loaded. The System or Source Tape Cassette is rewound. For disk to tape processing, go on to the next step. For all other operations go to Step 18.

17. ENTER THE NUMBER OF THE
TAPE LENGTH OPTION
?_/

1. 75 FT TAPE (WLI#174-1250)
2. 150 FT TAPE (WLI#174-1251)
3. 175 FT TAPE

17. Key 1,2, or 3, EXEC.

18. MOUNT MASTER (input medium)
IN (input unit) UNIT XXX
KEY RETURN(EXEC) TO RESUME
?_

18. Insert the input medium into the specified input unit, close the door, and touch RETURN(EXEC).

NOTE:

XXX on the screen is the address of the input device entered in Step 4.

19. MOUNT A (output medium) IN
(output unit) UNIT ZZZ
KEY RETURN(EXEC) TO RESUME
?_

19. Insert the output medium into the output unit, close the door, and touch RETURN(EXEC).

NOTE 1:

ZZZ on the screen is the address of the output device entered in Step 5. For verify only, skip to Step 21. For copy or both, go on to the next step.

NOTE 2:

If the output medium is tape, the display requests a "BLANK CASSETTE". If VERIFY ONLY has been selected, disregard this portion of the message and mount the tape to be verified.

20. (input medium)/(output medium)

```
*****************************
*-----DO NOT DISTURB--------*
*---COPYING FILE p OUT OF q-*
*                           *
*****************************
```

20. Temporary display. The number p on the screen increases by one as each file is copied, until the number at q is reached. For all disk to tape operations, go to Step 22. For other operations, if copy only was selected, go to Step 23.

NOTE 1:

If the message FILE...IS A PROTECTED FILE AND CANNOT BE DUPLICATED appears, the file name includes the protect option of the BASIC language. The protected file is not copied, and the next file is read.

NOTE 2:

If ERR 49 occurs, the number of files expected (entered in Step 12) exceeds the number of input files, or the input tape lacks a trailer record. Execution halts. Verification requires another execution of the program.

NOTE 3:

For disk to disk, if the message STOP: FILE...ALREADY EXISTS appears, a file of the same name already exists on the output disk. Start over from Step 1.

21. (input medium/output medium)

```
**************************
*-----DO NOT DISTURB-------*
*-VERIFYING FILE p OUT OF q*
**************************
```

21. Temporary display. The same process as in Step 20 occurs, except that the Files are read from the output unit and checked against the files read again from the input unit. Skip to Step 23, except for disk to tape, go on to the next step.

22. NEXT TAPE WILL START WITH (file name)

22. Temporary display. If uncopied or unverified files are left on the input disk, return to Step 19. If all the files have been processed, go on to the next step.

23. END PROGRAM
FREE SPACE = ...
...

23. Execution is complete.

CHAPTER 2: SORT DISK CATALOG

2.1 DESCRIPTION

The SORT DISK CATALOG Utility reads the index area of a disk, sorts the entries either alphabetically by file name, or numerically from lowest to highest starting sector, and prints the sorted catalog either on the display screen or on paper via the Model 2221 Line Printer. The contents of the disk are not altered.

Either active entries, scratched entries, or both, can be selected as eligible for sorting. The sort array holds up to 247 eligible entries. If a catalog has more than 247, a partial catalog is generated.

2.2 OPERATING INSTRUCTIONS

Turn on the equipment. Press the cassette door release button of Unit 1 (on the console). If the door does not open, press REWIND and try again. Insert the System or Source Tape Cassette. Close the door, press REWIND, touch RESET, key CLEAR, and touch RETURN(EXEC).

DISPLAYS	INSTRUCTIONS
1. READY :_	1. Key LOAD "SORTCAT", EXEC. (EXEC signifies touching the RETURN(EXEC) key.)
2. READY :LOAD "SORTCAT" :_	2. Key RUN, EXEC.
3. ENTER 0-FIXED, 1-REMOVABLE ?_/	3. Key zero or one, EXEC, according to the disk unit to be used for reading the index. Mount the disk.
4. ENTER 0-NAME, 1-SECTOR ?_/	4. Key zero or one, EXEC, according to whether the index entries are to be sorted by file name or starting sector number.
5. ENTER 0-ALL, 1-ACTIVE, 2-SCRATCHED ?_/	5. 0, EXEC = sort all the index entries. 1, EXEC = sort only the entries for active files. 2,EXEC = sort only the entries for scratched files.
	NOTE: If the processing light goes on, but nothing else happens, turn on the disk drive. If the disk drive is already on, insert the disk in the unit selected in Step 3.

6. REMOVABLE (FIXED) DISK CATALOGUE SORTED BY...

   INDEX SECTORS =...
   END CAT. AREA =...
   CURRENT END =...

   CATALOG ITEMS NOT DESIRED
   ITEM NAME TYPE START...
   _

6. Items which were not selected in Step 5 will now be listed on the screen. That is, if 'Active' only was selected at Step 5, scratched entries are now listed. If 'SCRATCHED' only was selected, active entries are listed. If 'ALL' entries were requested at Step 5, none are listed now.

7. ENTER 0-COMPLETE, 1-PAGE, 2-HARDCOPY
   ?_/

7. 0, EXEC = display all of the sorted entries on the screen.
   1, EXEC = display the entries one screen at a time. The next screen is to be obtained by touching RETURN(EXEC).
   2, EXEC = print all of the sorted entries on the Model 2221 Line Printer.

   The sorted entries are displayed or printed.

   NOTE:

   If the processing light goes on, but nothing else happens, turn on the printer.

8. END PROGRAM
   ...

CHAPTER 3: TAPE FILE LIST

3.1 DESCRIPTION

The TAPE FILE LIST Utility reads a tape cassette and displays and/or prints, for each file read, the file name and the number of blocks in which the file is stored.

One of the instructions displayed on the screen requests keyboard entry of the number of files to be read. If the number is not known, enter any number probably greater. When it appears that all files have been read, end the program by depressing Special Function Key Zero.

Data files can be read only if creation was preceded by a DATA SAVE OPEN statement and followed by a DATA SAVE END statement.

3.2 OPERATING INSTRUCTIONS

Turn on the equipment. Press the cassette door release button of Unit 1 (on the console). If the door does not open, press REWIND and try again. Insert the System or Source Tape Cassette. Close the door, press REWIND, touch RESET, key CLEAR, and touch RETURN(EXEC).

DISPLAYS	INSTRUCTIONS
1. READY :_	1. Key LOAD "TAPELIST", EXEC. (EXEC signifies touching the RETURN(EXEC) key.)
2. READY :LOAD "TAPELIST" :_	2. Key RUN, EXEC.
3. ENTER TAPE NAME (MAX. 30 CHARACTERS) ?_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _/	3. Key the name you desire to appear on the printed list of file names, EXEC.
4. SELECT INPUT TAPE DEVICE CODE ENTER 1-10A, 2-10B, 3-10C ?_/	4. Key 1,2, or 3, EXEC, corresponding to the address of the unit in which the cassette is to be read.
5. ENTER THE NO. OF FILES ON TAPE ?_ _ _/	5. Key the number of files to be read, EXEC. If the number is not known, key a number probably greater.
6. CHOOSE THE OUTPUT DEVICE(S) DESIRED ENTER S-SCREEN ONLY, H-HARDCOPY ONLY OR B-BOTH ?_/	6. Key the letter appropriate to the type of output desired, EXEC. For S, skip to Step 8. For H and B, go on to the next step.

7. MOUNT PAPER IN PRINTER
KEY RETURN(EXEC) TO RESUME
?_/

7. Insert the paper into the printer, and touch RETURN(EXEC).

8. MOUNT INPUT TAPE IN UNIT XXX
KEY RETURN(EXEC) TO RESUME
?_/

8. Insert the tape to be read into Unit XXX, close the door, and touch RETURN(EXEC).

NOTE:

XXX on the screen is the address selected in Step 4.

9. (Tape name) TOTAL COUNT=M
PROG FILE=... BLOCK COUNT=...
PROG FILE=... BLOCK COUNT=...
... ...

9. As the files are read, the name of each file is displayed and/or printed after PROG FILE. The number of blocks in the file appears after BLOCK COUNT. The total number of blocks read appears after TOTAL COUNT.

NOTE 1:

If the processing light goes on, but nothing else happens, turn on the printer.

NOTE 2:

For the printer option only, if the processing light stays on while the tape is turning without pauses, and the block count is not increasing, the last file has been read. Touch RESET and depress Special Function Key 00. For the screen option only, let the tape run to the end, since touching RESET clears the screen.

10. STOP END OF PROGRAM
:_

CHAPTER 4: DISK SECTOR CONDENSE

4.1 DESCRIPTION

The DISK SECTOR CONDENSE Utility removes scratch files from the catalog and index of a disk and moves the other files to eliminate the sectors between them. The same disk is used for input and output.

4.2 OPERATING INSTRUCTIONS

Turn on the equipment. Press the cassette door release button of Unit 1 (on the console). If the door does not open, press REWIND and try again. Insert the System or Source Tape Cassette. Close the door, press REWIND, touch RESET, key CLEAR, and touch RETURN(EXEC).

DISPLAYS	INSTRUCTIONS
1. READY :_	1. Key LOAD "CONDENSE", EXEC. (EXEC signifies touching the RETURN(EXEC) key.)
2. READY :LOAD "CONDENSE" :_	2. Key RUN, EXEC.
3. MOUNT DISK PLATTER TO BE CONDENSED IN DISK UNIT KEY RETURN(EXEC) TO RESUME ?_	3. Insert the disk from which the scratch files are to be removed into the fixed unit of the disk drive, and touch RETURN(EXEC). NOTE: If the processing light goes on, but nothing else happens, turn on the disk drive, touch RESET, and start at Step 2. If the disk drive is already on, insert the disk into Unit 1 and close the door.
4. CONDENSING DISK _	4. Temporary display. NOTE: If the message STOP INDEX FULL appears, the file protect tab has not been removed from the disk. Remove the tab, touch RESET, and start at Step 2.
5. END OF PROGRAM ...	5. To check that the files have been condensed, key LIST DCF, EXEC.

CHAPTER 5: 1200/2200 TRANSLATION

5.1 DESCRIPTION

The translation programs convert a data tape generated on the System 1200 for use on a System 2200, or vice versa. Translation 1 requires that the system be equipped with Option 2-General I/O ROM. Translation 2 does not require this, but is somewhat slower in operation.

5.2 OPERATING INSTRUCTIONS

DISPLAYS	INSTRUCTIONS
1. READY :_	1. Key LOAD "12/22-1", or LOAD "12/22-2" if no option 2 is available, EXEC. (EXEC signifies touching the RETURN(EXEC) key.)
2. READY :LOAD "12/22-1" ("12/22-2") :_	2. Key RUN, EXEC.
3. ENTER 1-1200/2200 OR 2-2200/1200 ?-/	3. Key 1, EXEC, or 2, EXEC, according to whether you wish to convert a System 1200 tape cassette for use on a System 2200, or vice versa. NOTE: The 2200 tape must have been created from a 1200 tape by this program.
4. ENTER 1-SCREEN, 2-HARDCOPY, 3-BOTH, 4-NONE ?-/	4. Key 1,2,3, or 4, EXEC, according to whether you wish to view the records on the screen alone, on paper alone, both, or not at all.
5. ENTER LETTER NAME OR RETURN(EXEC) ?_ _ _ _ _/	5. To convert all the records on the input tape, touch RETURN(EXEC). For 1200 to 2200 conversion, to convert data starting from a memo name, key the memo name, EXEC. NOTE 1: If the memo name exceeds five characters, key in the first five. NOTE 2: For 2200 to 1200 conversion, use only the option to copy all the data.

6.	MOUNT...DATA CASSETTE IN UNIT 10A BLANK CASSETTE IN UNIT 10B KEY RETURN(EXEC) TO RESUME ?_	6. Remove the System Tape Cassette from Unit 10A, insert the cassette to be converted, close the door, insert a blank cassette into Unit 10B, close the door, and touch RETURN(EXEC). If you chose hard-copy or both in Step 4, go on to the next step. If you chose screen or none, skip to Step 8.
7.	MOUNT PAPER IN PRINTER KEY RETURN(EXEC) TO RESUME ?_	7. Insert paper into the printer and turn it on. Touch RETURN(EXEC).
8.	END PROGRAM ...	8. The files are converted. If the input tape ends with a trailer record, this message appears.

CHAPTER 6: TAPE STRUCTURE DUMP

6.1 DESCRIPTION

The TAPE STRUCTURE DUMP utility reads a tape and prints a list of the record types stored on it. The following record types are recognized:

a) Standard program and data header records.
b) Protected file header records.
c) Standard program and datafile intermediate records.
d) Non-standard records.
e) Program and data trailer records.

The utility counts the number of blocks of a given record type until a different record type is found. The record type and the count are printed, and then the count begins again with the new record type. In the case of header records, the file label is printed as well.

A total block count for all record types is printed at the end.

Output is optionally hardcopy (to the 2221 Line Printer) or display. If the latter is selected, all counts are continuously displayed with count update occurring as records are read.

BAS files produce a single header record with label "SCRATCH" followed only by intermediate records.

Non-standard 100 byte tape blocks cannot be processed in this utility.

6.2 OPERATING INSTRUCTIONS

Turn on the equipment. Press the cassette door release button of Unit 1. If the door does not open, depress REWIND and try again. Insert the System or Source tape cassette. Key CLEAR and RETURN(EXEC).

DISPLAYS	INSTRUCTIONS
1. READY :_	1. Key LOAD "TSD-010A", EXEC.
2. READY :LOAD "TSD-010A" :_	2. Key RUN, EXEC.
3. ENTER INPUT DEVICE ?_ UNIT # ADDRESS 1 10A 2 10B 3 10C	3. Enter the unit number for the desired input device, EXEC.

4. TAPE STRUCTURE DUMP IS
A HARDCOPY DESIRED Y/N

4. A Y response causes all output to appear on the 2221 printer and only there. An N response causes output to appear on the display only.

If N is entered, skip to Step 7.

5. READY PRINTER WITH PAPER
KEY RETURN(EXEC) TO RESUME

5. The printer must be on (printer select light on) and the paper must be in place.

6. KEY SPECIAL FUNCTION KEY 15
WHEN PROGRAM EXECUTION STOPS

```
**************************
*      DO NOT DISTURB    *
*   TAPE STRUCTURE DUMP  *
**************************
```

6. Temporary display for hardcopy choice only.
Go to Step 8.

NOTE:

This program continues until an end of tape error condition occurs. However, if the cassette drive has stopped producing the clicking sound that indicates blocks being read, one may depress RESET to terminate processing.

7. KEY SPECIAL FUNCTION KEY 15
WHEN PROGRAM EXECUTION STOPS
TOTAL BLOCK COUNT XXX

7. For no hardcopy only. Total block count is continuously updated. Tape structure is displayed as it is encountered.

NOTE:

This program continues until an end of tape error condition occurs. However, if the cassette drive has stopped producing the clicking sound that indicates blocks being read, one may depress reset to terminate processing. This clears the display.

8. :_

8. Depress Special Function Key 15 to print the final record type and count.

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