

WANG SYSTEMS NEWSLETTER NO. 2

THINGS DID CHANGE

We would like to apologize for the delay in the publication and release of our Newsletter No. 2. Due to a change in personnel, it was necessary to delay the release date.

The System Support Group - Its growth is a direct result of Wang's growing market place and technology and is presently structured as follows:

Dale R. Jelley — Director

Responsible for overall direction of management of the Systems Support activities.

William P. Poticha — Director of Consultant Relations

Responsible for day to day administration of software vendor liaison programs as well as Field Analyst support and training.

Patrick Dodds — Systems Analyst

Responsible for Major Accounts technical sales support (proposal/R.F.Q. assistance) and software information exchange.

Jim Curran — Contract Administrator

Administers all Third Party support contracts and monitors all systems responsibility orders.

Cathy Blake — Secretary/Administrative Assistant

Maintains software vendor files, encodes System Management Reports for entry to computerized data base, and has production responsibility of the Systems Newsletter.

NEW PRODUCTS RELEASED

Model 2210 Console —

This new product offers mini-diskette capability and compatibility on all WCS/2200 systems. The unit will have the same general appearance as the PCS-II except for the 12" CRT as found on the Model 2226. Single drive Model 2210 will be field upgradeable to a dual drive. The mini-diskette cable can be connected to a disk controller card in a CPU. This will allow transfer of programs and/or data files from other disks to the mini-diskette.

Model 2271P Option —

This option adds plotting capabilities to the basic 2271 Output Writer. The Model 2271 with the "P" Option will fulfill most specialized forms filling requirements in business applications. While offering greater cost effectiveness than the current 2202, the Model 2271P also provides the user the latest hardware technology.

APPLICATION BULLETINS

There are no newly released application bulletins. The latest application bulletin is # 20 ISS Release # 2 (per Newsletter No. 1).



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MANUALS

Periodically, new and/or revised manuals are released from Lowell, Mass. Starting with Newsletter No. 2, we will publish this list in each System Newsletter Release.

MANUALS

2200 \$PARK Invoicing & Accounts Receivable Operator's Manual (700-4121)
2200 Auto/Mate III Operator's Manual (700-4133)
2200 Introducing Auto/Mate III (700-4125)
2227B/Option 62 Buffered Asynchronous Communications Controller User Manual (700-4114)
2200 Liquid Scintillation Data System (LSDS) (Diskette) Operator's Manual (700-4111)
2200 Lifeline Operator's Manual (700-4139)
2254 Interface User Manual (700-4136)
120W Line Printer Function Specifications Manual (700-4096)
GBS-Mod I (General Business System) (Disk) System Manual (700-4102)

REPRINTS

2200 Integrated Support System User Manual Release 2 (700-3657B)
Ribbon Cartridge & Print Wheel Replacement (700-4066A)
2200VP Disk Reference Manual (700-4081B)
General I/O Instruction Set Reference Manual (700-3514E)
2200 Programming in Basic Manual (700-3231F)
2200 Disk Memory Reference Manual (700-3159G)
2209 Nine-Track Tape Drive User Manual (700-3634A)
2251 Line Printer User Manual (700-4042A)
2227B Buffered Asynchronous Communications Controller Data Sheet (700-3830A)
2200 Nine Track Tape Utilities Manual (700-3673A)

PRODUCT BULLETINS

The following list of Bulletins are in addition to the list published in Newsletter No. 1.

NUMBER	SUBJECT
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135	Wang Word Processor Accessories
136	2251 Line Printer

WANG SLANG

ALPHANUMERIC

A vocabulary (or character set) that includes both alphabetic characters (letters) and numeric characters (numbers) or exclusive alphabetic characters or exclusive numeric characters.

BASIC

Beginner's All-purpose Symbolic Instruction Code. A simple conversational programming language that has been improved and extended by Wang Laboratories for use in their 2200 systems.

CPU

Central Processing Unit. The portion of the computer which controls the peripheral equipment and performs the functions dictated by the program.

CRT

Cathode Ray Tube. The visual display unit used by Wang Laboratories. Two sizes are available, 16 rows, 64 columns (1024 characters) or 24 rows, 80 columns (1920 characters).

DEFAULT

A set of conditions that the CPU assumes, if not told differently. On the 2200, for example, the CPU will select the CRT for output unless otherwise specified.

MOS

Metal Oxide Semiconductor. An integrated circuit (IC) chip used as a memory device. Large Scale Integration (LSI) is used to place a large capacity of memory on one chip. The method is incorporated by the 2200 system.

PERIPHERAL

A device used to input information and/or accept output information from the Wang 2200 system. (High Speed Printer, Disk, card reader, typewriter, etc.)

DID YOU KNOW?

- THAT the latest system initialization for the 2200VP is Release # 1.4 (Part No. 701-2118). The release has corrected several micro-code problems discovered.
- THAT alphanumeric comparisons execute faster than numeric comparisons.
- THAT you can have expanded print with the Print Using Statement - Try it!
 - 10 Select Print 215
 - 20 Input A\$
 - 30 Input B\$
 - 40 Input C\$
 - 50 Str (A\$, 5, 1) = hex (0E)
 - 60 Print using 100, A\$, B\$, C\$
 - 100 % Code No = # # # #

- THAT there is a problem running programs on the VP using mat sort if simple element vector arrays are used. Consider A\$(10) with a locator array L\$(10)2. If hex printed, the locator array on a 2200T may look like this:

```
0101 = 1st R, 1st C
0201 = 2nd R, 1st C
0301 = 3rd, 1st C
```

But on a VP, the locator array would look like this:

```
0001 = 0 row, 1st C
0002 = 0 row, 2nd C
0003 = 0 row, 3rd C
```

This gives an obvious error 18 because there is no row zero. The fix is to dimension A\$(10, 1), and to incorporate the column subscript into every reference of that array. When this is complete, the locator array will appear the same as on the T CPU.

GENERAL BUSINESS SYSTEM (GBS)

With the release of some of the GBS modules in progress, a number of questions have been received regarding its content and use. In an effort to avoid the repeated answering of similar questions we are attempting to identify and publish those questions that seem to be popular (along with their respective answers.)

We will be publishing, on an ongoing basis, any information regarding GBS which we feel is helpful to those working with it, both on a selling and installing basis.

Two publications are currently under development and due for release by the end of May. One is called "Introducing GBS" and is a general overview type introduction. Included in this document are detail throughput timings for Modules 1 and 2 (Mod 3 timings will be printed soon). Comparison timings are given for diskette and disk version on the 2200 T as well as the 2200 VP. The second document is entitled "GBS Sample Reports Manual". It includes a sample of each of the reports contained in Modules 1, 2 & 3 as well as the file size restrictions for the diskette version, overview flow diagrams and file layouts. We feel that this manual can be used by vendors in a survey situation as an aid in determining the specific requirements of the prospect. By showing the prospect just what is contained in the system it may be possible to minimize the changes requested, thereby keeping the installation time short and the software cost down. That is one of the major goals of GBS.

As with all of our products, we need and actively solicit your feedback. Any questions, comments, criticisms, etc. should be forwarded to Bob Soucy in Lowell.

Q. Is it difficult to change the number of decimal positions in numeric fields?

A. An arbitrary decision was made with GBS on the number of decimal positions for any numeric field within the system. The system is only designed to handle the rounding of numbers according to this criteria. Any changes in the decimal formats will necessitate a bit of work. (This is not extensive). The first area to approach is the individual file I/O module. Refer to the special write-up in the Mod II technical guide which explains the pack/unpack and \$PACK/\$UNPACK routines used in GBS. Fields with "like" decimal positions are grouped together for the pack statements so these may need to be re-arranged for efficiency. Secondly, any program which prints these fields or uses them for calculations will have to be modified. Since great care was taken in GBS to maintain meaningful and consistent variable usage, it should be easy to make use of cross-referenced listing of the source programs and merely note where the variable occurs that is to be modified and make the necessary changes.

Q. Why does the product number contain leading zeros and would it be easy to eliminate these?

A. The purpose of zero filling and right justifying the 12 character product number is to maintain sequence. Left justifying this number will not accomplish this. If the leading zeros cause problems you can modify listings and reports to suppress these if you desire. If the user does not need such a large part number, you can reduce its size or manipulate it whatever way is beneficial. For the package, however, we felt it should be sufficiently large enough to handle a range of customers.

A possible solution to eliminating these zeros would be to substitute INIT (20) for INIT (30) where the formula is used to right-justify. This will produce the same results as zero filling except that it fills with leading blanks.

Q. Does GBS handle "balance forward" or "open item" receivables?

A. GBS handles both. There is a one digit code in each customer master file record which specifies what type customer it is. It is possible for a user to have a mixture of both types. During the month all invoices and payments for both types of customers are accumulated in an open item format in the Accounts Receivable file. Then at end of month processing, opening balances for "balance forward" customers are calculated and a "balance forward" record is written to the new Accounts Receivable file. For an "open item" customer, payments are matched to invoices and all appropriate items purged. Only those invoices, still open, are passed to the new Accounts Receivable file.

Payment entry is controlled by the code in the Customer record.

Q. How much sales analysis is there in GBS?

A. Both the confirmation program in the order entry system and the invoice create program in the invoicing system feed sales information to the customer, inventory, and salesman files. These contain month-to-date and year-to-date sales dollars and cost, along with units sold in the inventory file. Each inquiry/list program for these files has a sales analysis option which will produce the appropriate reports showing the % margin. A monthly and yearly program rolls and clears these files. In GBS, we felt that to produce an adequate sales information base would be sufficient. Since each customer has unique needs for sales analysis, it seemed more beneficial to leave this area open for vendor modification. Since the information is there, it should be fairly simple to write programs to sort and accumulate this data and report it in the most meaningful manner to a particular user.

Q. What is the purpose of the Control files and how are they used in the package?

A. There are actually two purposes for the Control files. The first purpose is to hold system information such as processing flags, last invoice, non-regular invoice, and order number assigned, general ledger base account number, up to date A/R and A/P balances, etc. This information is contained in the first record of the Control file (record # 000) called the Control record. This is used by the system now.

The second purpose is for future end-user or vendor use. It exists in the hard-disk version of GBS only. There is a record for each day of the year in each of the Control files. All daily totals are accumulated and written to these records using the system Julian date as a key. The Control file inquiry/list programs will allow these records to be displayed or printed at any time. The user or vendor may then write small programs either to accumulate the fields in these records or perform analysis on them.

It is conceivable that programs could be written to summarize selected fields on a monthly basis to provide General Ledger posting data.

Q. What is the difference between GBS on the hard disk and GBS on diskette?

A. The diskette version is actually a subset of the hard disk GBS. After the hard disk version was created and fully tested, the programs were taken and modified to produce the diskette system. As few changes were made as possible. All files with the exception of the Control File are exactly the same in both versions to allow for upward hardware expandability. The Control File is the same format in each version however the hard disk system contains a control record and one record for each day of the year. The Diskette uses only the control record. Report files do not exist in the diskette version but rather all audit reports are printed interactively in any maintenance type program. The diskette version does not allow for multi-volume transaction files. The subroutine SUBFILE which handles this in the hard disk version has been modified to merely check for correct diskette files being mounted on a particular drive before attempting to access a file or program. There are full backup procedures available in the diskette system but due to the physical differences between the two systems these require that the operator take positive steps to initiate them. Several programs which interact with a large number of files have had to be split into separate update passes and some by-product reports such as the Lost Sale/Estimated Shortage Report and the Shipping Shortage Report have been intergrated into programs and have no sort or summary options. Finally due to the limited file sizes in the diskette version, some procedures such as KFAM-file reorganization have been built in to automatically be run at certain critical points in the operation to preclude any problems that these limited sizes may cause.

Q. Are there any Recovery Procedures in GBS, such as invoice-recovery in BAS?

A. Yes. In GBS, the Order Entry Program, Shipping Confirmation and Invoice Create Program are all "batch" entry type programs. Records are written to a sequential transaction file to facilitate greater efficiency in the entry phase. After all entries are made, the transaction file is closed and further processing, such as printing and file updating takes place. In this mode, the machine may go unattended and the operator is free to perform other duties. This design would indicate that large batches of entry are the most efficient. However, this further indicates that any problems at this time (such as diskette errors or power failures, etc.) will cause the user the greatest time loss. If an operator has been making entries for 2 hours for instance, then time will have to be spent in re-entry. In regard to the Order Entry Program, further complications occur. In this program the quantity allocated field on the Inventory File is adjusted as each entry is made. So if an operator were to simply re-enter a batch of orders, all those products affected would erroneously be updated twice.

Considering the consequences and likelihood of problems at this point, a set of two recovery programs has been provided. Quite simply, the first one (RECOVER 1) allows adjustments to be made to the quantity allocated field on the inventory file. The second one (RECOVER 2) writes Hex (FF) record to and properly closes the transaction file that was being written to when the problem occurred.

This approach will not cover the Lost Sales/Estimated Shortage File or the Shipping Shortage File. These reports will be lost for this batch.

As for the errors arising in the update portion of these programs, the variables involved are too complex to allow a single approach to recovery. Invoices could be partially updated and the user would have no way of knowing how far the update has progressed. In case of power failure, there is not even a way to determine what the last invoice number was, without dumping the entire accounts receivable file and searching through it or using the invoices to check on receivable records written. Furthermore, an item could have had its key file record written and not its user file record, etc. Thus it seems that only real source or recovery would be back up and some degree of reentry. Any errors at this point will require individual analysis.

Q. What is the reason for the diskette in the hard-disk version and can it be installed without diskette?

A. The diskette is used for a number of reasons:

It provides a universal start-up procedure (startup is always the same regardless of which application a module is to be run first)

Certain transaction files are written to diskette to allow the user to save these files for weekly or monthly detail reports.

"Spool" type report or print files are written to diskette to allow batch printing at a later time, if desired, and to eliminate the necessity of allocating a large amount of space on hard disk for the many transient print files.

Use of the diskette allows for open ended multi-volume files, if necessary. This can't be done on the hard disk.

The diskette allows a convenient means of passing data from an application on one hard disk set-up to an application on another.

It would be possible, under some conditions, for a vendor to modify the system to eliminate the need for the diskette. This decision should be carefully thought out because of the many implications, some of which are not immediately apparent.

First off, the invoice transaction file and the order transaction file will of course have to be of a limited size. (With these files on the diskette, there can be more than one volume so the file size is open ended). By establishing one transaction file for each on the hard disk, any possibility of batching transaction files for an invoice register, for example, will be eliminated. The only changes necessary if the transaction files are initialized to the hard disk, are modifying the appropriate SELECT statements and changing the Open/Close utilities for sequential files which contain mount messages for diskette.

The programs affected in MOD 1 are:

- Invoice Create
- Invoice Print
- Invoice Register
- Invoice Transaction Dump

The programs affected in MOD 2 are:

- Order Entry
- Order Register
- Shipping Confirmation
- Shipping Register
- Order Transaction Dump
- Physical Inventory Entry
- Physical Inventory Sort

The programs affected in MOD 3 are:

Accounts Payable Journal Entry File Sort
Accounts Payable Distribution Report
Merge Journal Entry Transactions
Accounts Payable Distribution Dump

Secondly, all audit reports must be incorporated into the appropriate programs, as in the diskette version, and all audit report programs eliminated. Refer to the diskette version of GBS for the program logic for each of the following programs.

MOD 1:

Customer Maintenance
Inventory Maintenance
Inventory Transaction Entry
Salesman Maintenance
Aging
Purge
Accounts Receivable Transaction Entry

MOD 2:

Inventory Maintenance
Inventory Transaction Entry

MOD 3:

Vendor Maintenance
Open Item Maintenance
Accounts Payable Transaction Entry
Check Print (This file will have to be eliminated or written to hard disk,
since checks are being printed at this time)
Accounts Payable Open Item and Vendor Update
Accounts Payable Journal Entry File Correction
Journal Entry
Correct Journal Entry Transaction
Chart of Accounts Maintenance

Finally, the programs GBS and START will need to be modified to run from the hard disk.

- Q.** Can GBS be installed with the 2231W-2 printer?
- A.** GBS was written for the 2221W printer. However, the only programs requiring modification for the 2231W-2 are those which print on preprinted forms. The changes have been coded and are available from the home office on request.
- Q.** Does GBS force the user to back up the files on a frequent basis?
- A.** GBS contains programmed backup procedures which are run at the operators request. Backing up of files on the diskette version is done through a program which asks the operator which specific files are to be copied. The hard disk version has a somewhat more controlled procedure. By following the recommended file allocation scheme, the most volatile files will be backed up each time the user indicates the end of application. The remaining, less volatile, files may be backed up anytime, at the request of the operator.
- Q.** Does GBS support a work station or multi-user environment?
- A.** GBS was designed as a single user system, therefore, in its unmodified state it will not support work stations. For certain specific user situations it may be possible for a vendor to modify the package to perform some functions in multi-station fashion. This situation should be approached very cautiously, however, as considerable effort may be required to achieve the desired results. The minimum requirement would be the substitution of KFAM-3 with KFAM-4. Further program and design changes will vary greatly according to the needs of the specific user.

Q. Does GBS contain Back Orders?

A. No. The package does not now produce an actual backorder, although it does report shipping shortages and lost sales. Because of the variety of backorder approaches, a single-type of backorder system could not be decided upon for a general package, so the system was designed with the necessary hooks for a vendor to utilize in providing the user with his own customized version of back-ordering if necessary.

The following is the revised release dates for GBS:

		FLOPPY DISK	HARD DISK
MODULE I	Invoicing Accounts Receivable Sales Analysis Minimal Inventory Control	Released	Released
MODULE II	Order Entry Inventory Control	May 77	May 77
MODULE III	Accounts Payable General Ledger	June 77	June 77
MODULE IV	Payroll	Not Announced	Not Announced

GENERAL

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