Access to Native VS DMS files has the following features:

- Requires the addition of File Access Subroutines to the BASIC-2 application program. The File Access Subroutines are provided with the 2200/VS LCO package.
- Allows access to any currently defined native VS DMS file type. For example, consecutive, relative, and multiple-indexed ISAM (Indexed Sequential Access Method) files are supported.
- Supports the sharing of native DMS files with other VS applications and systems and with similarly equipped 2200 systems connected to a VS.

SPECIFICATIONS

Number of Sessions
Four workstation emulation sessions or three workstation emulation sessions and one VS Filing Services (both VDISK and native DMS file access) session per 2258 controller.

2200 to VS Connection

Operating Mode
Asynchronous, polled

Data Format
Serial

Data Rate
4.27 Mbps

Transmission Medium
Dual-coaxial baseband cable

2200 System Requirements

MVP OS Release 2.7 or greater.
Requires a 28K memory partition to run the VDISK Utilities and Workstation Emulation.
Adding File Access Subroutines to a BASIC-2 application increases the program size by 5-7K.
Any 2336DE, 2336DW, 2226DW, 2236DE/DW, 2436DW, or 2326DW workstation can be used to run Workstation Emulation.

VS System Requirements

Operating System, Version 7.10 or greater.

GEN AS 2258 CLUSTER DEVICE:
4 DEVICES 1 PORT.
WON'T SHOW AS SUPPORTED DEVICE
BUT WILL BE ACCEPTED.

One unused serial port. The serial port is configured for a 2258MWS device using the VS GENEDIT program.
A procedure the Workstation 1 operator can use to start up the VS file access program for processing the 2200 file requests (both VDISK and native DMS).
The VS System Administrator provides this information.
All hardware, software, and a cable to connect the 2200 to the VS are included with the 2200 Local Communications Option product. The software is available in 5 1/4-inch double-sided double-density (DSDD) diskettes, 8-inch single-sided single-density (SSSD) or double-sided double-density (DSDD) diskettes.
The Wang dual coaxial cable supplied is 25 feet (7.6 m) in length. Additional cable, to meet other length requirements, is available from WangDirect™ in lengths up to 2000 ft (609.6 m). A workstation function strip is also included.

Standard Warranty Applies

WangDirect is a trademark of Wang Laboratories, Inc.

2200 SYSTEMS: 2200/VS LOCAL COMMUNICATIONS OPTION

Wang Laboratories, emphasizing our continuing commitment to the 2200 and MicroVP product line, to our 2200 Value Added Reseller (VARs) and to our users, announces the ability to data-link a 2200 to a VS with the new 2258 Controller. Also known as the 2200/VS LCO (Local Communications Option), the 2258 provides a high-speed 928 data-link to the VS for our 2200 VARs (Value Added Resellers) and users.

The 2200/VS LCO provides the following benefits:

- VDISK - The ability to store and retrieve 2200 data in 2200 format on the VS's disk storage system.

- DMS - The ability to store and retrieve 2200 data on the VS's disk storage system in VS native file format, thereby giving VS programs the ability to act upon the 2200 data.

- VSTE (VS Terminal Emulation) - The ability for a 2200 workstation user to log on to the VS and execute any VS task that doesn't require the downloading of microcode to a VS workstation.

HIGHLIGHTS

Wang Laboratories has sold, since its release, more than 67,000 2200 systems. According to the results of a recent internal Wang survey of the U.S. 2200 user base, 10% of our users intend to add another CPU (type not specified) and keep their 2200, and 10% intend to migrate to a mini like the VS. With 50% of the 2200s installed in the U.S. and the other 50% installed internationally, the study projects that 13,400 worldwide 2200 users are potential VS prospects.

The 2200/VS LCO was designed specifically to meet the needs of two types of 2200 users:

- Those users wishing to keep their 2200, but link to a VS or VSs as a method of expansion and/or systems enhancement.

- Those users wishing, either short-term or long-term, to update their system and migrate to the VS or wanting to have that option available to them if the need arises.

Therefore, the benefits and objectives of the 2258 are:

- To provide an expansion path for current 2200 users who want to keep their 2200 but are either at maximum configurations, want to off-load certain tasks better done on a VS type product, add new applications, or want to evolve to new technology.

- In the absence of a 2200 to VS software bridge, to provide a migration path for both the 2200 user or 2200 VAR to evolve to the VS and be able to utilize their existing data files, perform DP application development on the VS, and provide access to these new VS applications by the 2200 workstation user as they are developed on the VS.

- To protect our user base and channels of distribution with a strategy that provides an optional present and future migration path to the VS, thereby providing the reasons to stay with Wang and integrate and/or migrate their code to a Wang VS, not to a competitive system.

PRODUCT DESCRIPTION

The 2200/VS LCO is a data communications hardware and software option that enables a Wang 2200MVP, LVP, or MicroVP system using Release 2.7 of the Multi-user Operating System (OS) to communicate with a Wang VS computer system. Communications between the 2200 system and the VS system occurs at speeds of 4.27 megabits per second over dual coaxial cable facilities. The VS, with an available serial port for the coaxial cable connection, may be located up to 2,000 feet (609.6m) away (25 feet is standard) from the 2200.

The 2258 Communications Controller is an internal microprocessor-based controller mounted in an empty slot in the 2200 chassis. Each controller supports four concurrent sessions between the 2200 and the VS. You can either have four terminal emulation sessions (VSTE) or three VSTE and one disk session (VDISK and/or DMS) per controller. Multiple 2258 Controllers will allow combinations as 16 sessions logged on to a single VS, or one 2200 linked to four VSs, or one 2200 with eight sessions logged on to two VSs, etc.

When the 2258 Controller is installed in the 2200 chassis, two addresses are set: a 2200 disk address for VDISK requests and a communications address for workstation emulation and VS filing requests. When the 2200 is powered on, the controller receives microcode from the VS and initializes itself.

A 2200 user will now be able to perform the following:

- Under VDISK, run 2200 application programs on the 2200 that store and retrieve 2200 disk-image files in 256-byte records on the VS's filing system. These files are created by 2200 utilities included with the LCO package.

- Using the DMS services of the VS, run 2200 application programs that store and retrieve 2200 data from the VS in native VS files, using subroutines supplied with the LCO package.

- Using VSTE, log on to the VS and run VS application programs that do not require the downloading of microcode to a VS workstation. Some examples are DP applications, Wang OFFICE, PACE, and VS Batch Communications.

VDISK has the following features:

- Supports one VS filing services session per 2258 Controller (all 2200 applications have access to the VS disk through this single link).

- Supports up to 32 VDISKs for each 2258 Controller.

- Supports a VDISK maximum platter size of 65,536 sectors (a 16MB 2200 platter).

- Maintains a table containing each open VDISK

- Requires no change to the 2200 BASIC-2 program other than a device address (if different from the device address of the 2258).

- Provides from 2200 workstation number one, the VDISK utilities to create, edit, view, or delete VDISKs in the configuration file. Any other workstation can view the VDISK status.

- Supports the sharing of VDISK files with similarly equipped 2200 systems connected to the VS.

- Enables a 2200 user to copy a VDISK file to a 2200 disk.

DMS or the 2200/LCO native VS filing services has the following features:

- Supports one VS filing services session per 2258 Controller (all 2200 applications have access to the VS disk through this single link).

. Requires the addition of file access subroutines to the BASIC-2 application (provided with the package).

. Allows access to any currently defined native VS DMS file type. For example, consecutive, relative, and indexed files are supported.

. Supports the sharing of data converted from 2200 to native VS DMS files with other VS applications and systems with similarly equipped 2200 systems connected to a VS.

VS Terminal Emulation (VSTE) has the following features:

. Available from any workstation on the 2200.

. Supports up to four workstation emulation sessions concurrently per 2258 Controller.

. Emulation of a VS 2256C workstation (DP only).

NOTE: The statement that you can only have one VDISK or DMS disk session per 2258 means you can only log on to the VS for disk tasks once per 2258 Controller. This should be done by a workstation on the 2200 designated as Workstation 1. However, all resident applications have simultaneous access to this link and are able to store and access their files on the VS in the normal 2200 time-slice mode. In addition, some applications can be using VDISK and others DMS, all at the same time.

CONFIGURATION REQUIREMENTS

2200 System Requirements

. An LVP, MVP, or MicroVP with Release 2.7 or greater of the Multi-user Operating System (OS) and 28KB Control Memory. OS releases below 2.7 will allow VSTE only.

. A 28KB partition to run the VDISK utilities and VSTE.

. 5KB to 7KB additional needed per existing program for file access routines when using DMS.

. Any 2236/26, 2336/26, or 2436/26 DE/DW series of workstations to run VSTE.

VS System Requirements

. Operating System 7.00 series that supports VS/2200 SRV. (Server that maps 2200 disk requests into VS DMS requests.) OS releases below 7.0 will allow VSTE only.

. An unused serial port for a 2258MWS (Multi-Workstation) device using the VS GENEDIT program.

. The designated 2200 Workstation 1 operator start up the VS ACCESS Task software for processing the 2200 file requests (both VDISK and native VS).

2200 To VS Connection

. Operating Mode - Asynchronous, polled
. Data Format - Serial
. Data Rate - 4.27MPS
. Transmission Medium - Dual-coaxial baseband cable

PERFORMANCE

VDISK

The VS Serial I/O Processor (SIOP) is designed to handle one request at a time from the 2258 Controller. The Serial IOP performance has been determined to be approximately 6 I/Os per second, independent of the size of the request. VDISK creates a 2200 disk image within a user-named VS file. A single 2258 may control up to 32 of these disk images at any one time. The user's application software then addresses the disk image just as if it were a real disk platter on the 2200 system.

However, when a user makes use of the 2200 cataloging capability, the user is actually using a three-tier system Catalog index and a File Storage Area. In order to open a file or load a file, the 2200 Operating System will first read Sector 0 of the disk image to determine the size (in sectors) of the catalog index. A hashing algorithm is used to determine where the file information may be stored within the catalog index. If the information about the file is not located within that sector, the index is read and searched one sector at a time in a circular fashion until it is found. Thus, in order to locate the start of a file, two or more sectors must be read from the disk image. Since the number of requests going to the VS is equal to the number of sectors needed to complete the disk request, added to the number of partitions attempting to use the disk link, users should carefully calculate their use of VDISKs.

Another operation that may become time consuming is the $OPEN statement. Whenever the user attempts to "hog" a disk, the 2200 will not allow any other user access to the entire disk unit. This means that all VDISK images must be "locked," one file at a time. If all 32 possible disk images were defined, response time would be excessive.

The 2258 support utilities allow the user to define multiple VDISK maps, which assign a user-determined number of 2200 platter addresses to an equivalent number of 2200 disk images. This facility will allow the user to pick the VDISK map for the particular application the system is currently executing, thereby minimizing the 2258 overhead and improving performance.

In larger systems or ones where heavy use of the 2258 data-link and VDISK is expected, multiple 2258 boards (three maximum) will increase the possible throughput.

DMS

The disk task semiple is available to all 16 partitions at the same time. If all partitions attempt to access the VS disk simultaneously, the response time could be excessive.

Hence, if heavy use is anticipated, multiple 2258s should be considered (limited only by the number of I O slots available).

PRODUCT STRATEGY

Target Markets

Research has shown that 10% to 20% of our 2200 user base are prospects for a VS and a large number of our 2200 software vendors and VARs want either a method of migration to or integration with the VS. Because of the architectural differences between the 2200 and the VS, a software bridge or BASIC-2 emulator on the VS is not practical at this time. We have found that an emulator on the VS can be built, but the current projected performance of the applications running on the VS is less than satisfactory. With this in mind, the 2200/VS LCO has been primarily designed for current 2200 users and our 2200 resellers or VARs as both a method of providing the integration of the 2200 with the VS and as an alternate method of migration. To understand how and which type of user or VAR could use the data-link, you must first understand the profile of our users and VARs.

Users

Our users can generally be classified as falling under one of four categories:

- A small- to medium-size business happy with the 2200 (multi-user) and will never outgrow the capabilities of the product.

- A single workstation (as the T or VP) user who wants to or should update their system and can either migrate upstream to a multi-user or multi-user capable system or downstream to another single-user type system.

- A small- to medium-size business outgrowing the capabilities of the 2200 but would rather add on to, not replace their 2200.

- The user who wants to migrate to a mini, but wants to maintain their current software.

VARs

VARs and software vendors account for 90% of the 2200s sold. ISOs (Independent Sales Organizations, referring to both software vendors and VARs) generally fall under one of three categories:

- Will continue to sell or provide software for the 2200 as long as we continue to make, enhance and support it.

- Will continue to sell and provide software for the 2200 but want to know the life cycle of the product, what is the evolution/migration path to other Wang products, and want to begin to integrate with and sell new technology. The need for an evolution/migration path can either be based on wanting to leave the 2200 or in addition to selling the 2200, going up-market to the VS or down-market to the PC in order to increase their market coverage.

- Want to leave the 2200 immediately for various reasons. This ISO wants a software bridge to another Wang product.

Hence, the 2200/VS LCO is a major part of the overall 2200 product strategy that has been formulated to address the needs of each of these defined user and VAR categories. This article deals with the integration with or migration to the VS.

External Product Positioning

Two of the most frequent questions that will be asked are "When do I need a software bridge?" and "When do I need the data-link?" By definition, a software bridge means you can move 2200 application software over to the VS and it will run as is. The data-link is a hardware bridge that allows for the sharing of data and resources between the 2200 and the VS. It is not a software bridge and should not be communicated as such.

The user or VAR who has perceived that they only want a software bridge, should be asked the following questions:

- Do you want to move your applications to the VS "as is" or is it time to re-systematize and update your software?

- Do you want an emulation or would you rather take advantage of the software features of the VS system?

- Do you want to move to the new system immediately with all applications or would you prefer a gradual transition over a period of time?

- What are your real objectives? To increase the capabilities and efficiency of your system or just to replace your 2200 system?

- Have you explored all the options of expansion, e.g., multiplexing additional CPUs, PCs/APCs as workstations and/or freestanding BASIC-2 CPUs to off-load single-user/single task applications, the 2200/VS LCO, etc.?

If the user or VAR would like to update their software, optimize their code on a VS, gradually migrate their applications or assign tasks to specific systems that do them best, chances are this user or VAR is a better prospect for the data-link than a software bridge. If a software migration to the VS is still more desirable, the data-link is an excellent migration assistance tool and will provide an evolution/migration path to the VS.

The following are two examples:

- A current 512KB MVP user with 10 workstations and a 2280 80MB Phoenix disk drive. The user will need to add a second 2280 to add new applications that will require a database management system (DBMS) and two more workstations. As the VS is a far better database manager, this user can data-link to a VS 5 for not much more than the cost of a second 2280 and using the DMS services of the VS, store their 2200 files on the VS in VS format. Through VSTE, current 2200 workstation users can log on to the VS and access the new VS applications that can utilize the VS resident 2200 data files.

- A user who wants to phase out of their 2200 and move their applications over to a VS. When the VS and the 2258 are installed, using DMS, they will move their files over to the VS in VS format and begin new application development using PACE. As the new applications are developed, VSTE allows the current 2200 workstation users to log on to the VS and execute those applications now resident on the VS.

In the first example, a user is integrating with the VS to perform tasks that are better done on the VS, while leaving tasks better done on a 2200, on the 2200. In the second example, in the absence of a software bridge, the data-link provides a migration path to the VS and gives the user the reason why their code should be ported to a Wang VS, not to a competitive system.

Over the last several years, our VARs have almost become the sole method of distribution for the 2200. As a result, unless a user is being serviced by a VAR, a perception has been developed by the user that Wang is not interested in nor is doing any new development for the 2200. In addition, those users that have made inquiries or have investigated the feasibility of migrating to the VS, have been told that their only option is to rewrite their applications on a VS. To clear up these misconceptions, an efficient method of information dissemination must be devised. Therefore, the 2200 Installed Base Marketing Program has been created. The basis of this program will be a series of 2200 user seminars designed to educate our 2200 user base on the status of the 2200 and their migration/evolution options.

COMPETITION

As the perception exists that no method of migrating to the VS exists, competition has used the approach that "If you have to do a major rewrite, why not rewrite to an IBM system? Will the same thing happen again if you need to update your VS?" This condition appears to be prevalent in the major accounts where we have lost VS business to IBM System/36s. Hence, it is very important that these accounts be identified and presentations and demonstrations be made to update them on their options. No other computer manufacturer offers a hardware link to their product from the 2200 like the 2200/VS LCO. The benefit of a phase-in/phase-out approach is that it allows an orderly transition from one system to another.

WANGCARE SERVICES

Software Services

Current 2200 WSS support policies and services will apply. Refer to the Support Services section of the current U.S. Pricing Manual, Book I, for WSS services offered for the 2200 product line.

Documentation

The 2200/LCO User's Reference Guide (715-0564) has been developed for the 2258 Controller and will be enclosed when the 2258 is shipped. The guide contains a complete overview of the capabilities of the 2258 Controller and complete systems requirements.

The 2200/LCO Programmers Reference Guide (715-0562) will provide the programmer for the 2200 and the VS systems administrator all the necessary information on both the 2200 and VS systems utilities and programming information necessary for a successful data-link. The Programmer's Reference Guide will be auto-enclosed when the 2258 is shipped.

Sales Aids

A 2200/LCO Data Sheet (715-0563) will be available from WangDirect at the end of Q3 CY'86.

HARDWARE SERVICES

Customer Warranty

The 2258 Controller is warranted to be free from defects in materials or workmanship for a period of 90 days from date of installation. Warranty is in accord with terms and conditions in effect as of the time of sale.

On-Site Maintenance Agreement

On-Site (Plan A), Wang's standard on-site maintenance agreement, provides for 12 months of on-site service.

Per-Call On-Site Service

Per-Call On-Site service is available on a time-and-material basis. Customers who wish to use this service should call the nearest Area Call Control Center toll-free number to arrange for a service appointment.

ORDERING INFORMATION

Refer to the Pricing Update article in this issue for U.S. list prices of the following products:

MODEL NUMBER	DESCRIPTION
2258-3	2258 Controller with 2200 software on 8" SSSD Diskettes, VS software on both 8" and 5 1/4" Diskettes
2258-5	2258 Controller with 2200 software on 8" DSDD Diskettes, VS software on both 8" and 5 1/4" Diskettes
2258-9	2258 Controller with 2200 software on 5 1/4" DSDD Diskettes, VS software on both 8" and 5 1/4" Diskettes

All orders must specify the media type using the appropriate model number suffix. Media type codes are defined on the inside back cover of FOCUS.

WORLDWIDE AVAILABILITY

MODEL NUMBER	FCS	VOLUME SHIP	REQUIREMENTS
2258-X	9/86	10/86	VS OS 7.00 2200 OS 2.7

QUESTIONS AND ANSWERS

Q1. Why have we developed a hardware link first and not a software bridge?

A1. For two reasons. The first is to meet the specific needs of our users. There are those users who want to expand their system by adding a VS, but keep their 2200, and there are those users who want to migrate off the 2200 and go to a mini. The second is we want to do now what we can do best. A 2200 to VS software bridge has been found to be, at this time, impractical. According to our research, it is possible to automatically port over 75% to 90% of the 2200 code to the VS. However, this code, running in emulation mode, will generally run 4 to 15 times slower on a VS than it ran on the 2200 due to the architectural differences of the two products. This is unacceptable performance to both Wang and the user. Performance for the data-link is very acceptable and also provides a method of migrating to the VS.

Q2. I have been told that a software bridge from the 2200 to the VS is the only way to go. What is your response?

A2. A software bridge and the 2200/VS LCO address different needs. If a user or reseller wants to move their software over to the VS "as is," then a software bridge is desirable. If a bridge were technically feasible, either Wang or a third party would have one available. The data-link serves two distinct purposes. First, in the absence of a software bridge, the data-link provides a method (not available before) of migration/evolution to the VS and the reason why a user, software vendor or VAR, should port their code to a Wang VS, not to another manufacturer. Also, not every user will want to port their code over "as is." Under those ground rules, the data-link is a better answer. Second, our recent study indicates that 90% of current 2200 users intend to keep on using their 2200s for one to four years. Therefore, the 2200/VS LCO addresses the larger segment of our user base.

Q3. How does the data-link provide a migration path for 2200 users wishing to migrate to the VS?

A3. The data-link provides two services that will facilitate the conversion process. The first is the ability to move the 2200 files to the VS in native VS file mode. The second is VSTE, which will allow the current 2200 workstation user to access the new VS applications as they are developed while still using the applications on the 2200 that have not been moved over to the VS. No other mini manufacturer offers these services. Hence, we have given the 2200 users logical reasons, even though they have to rewrite their code, why they should migrate to a Wang VS.

Q4. Why would a user want to keep their 2200 and link to a VS?

A4. For three reasons. The first is product satisfaction. Most users are very pleased with their 2200 and would prefer to expand their system, not replace it. Second, they do not want to incur the time and expense to move to another system. Third, certain applications run better on the 2200 than the VS and vice versa, and an integrated approach, depending on the application, can yield more efficient results.

Q5. I thought Wang wanted to upgrade our 2200 users to other Wang products as we are discontinuing the 2200?

A5. Wang is not only not discontinuing the 2200, but is in the process of enhancing and modernizing the product in the form of the MicroVP. It is the goal of Wang to provide our users the path they want to take. Hence, if keeping their 2200 and adding a VS is a better answer for a user or enhancing and/or updating their 2200 with more 2200 products is more desirable, they should have those choices.

Q6. Isn't adding a VS an expensive proposition?

A6. With the announcement of the VS 5, a 2200 user can purchase a single workstation VS 5 system, with 1MB main memory, 67MB disk and tape cartridge back-up for as low as $19,250. The current cost of a 2200 single 2280 80MB Phoenix disk drive is $16,500 including DPU. If the current user has a storage problem and is about to purchase a 2280, by using VDISK and the storage facilities of the VS, a user can get a complete small VS system for less than $3,000 more than the cost of a 2280.

Q7. Will a 2200 workstation user under VSTE be able to log on to the VS and execute VS WP?

A7. No. VSTE only supports those VS tasks that don't require the downloading of microcode to a VS workstation and the emulation of a VS 2256C workstation.

Q8. What does a user have to do to their program to use VDISK? DMS?

A8. Under VDISK, you only have to change the device address to conform to the device address of the 2258 board. DMS requires the addition of File Access Subroutines to the BASIC-2 application program. However, the 2200 program now has access to any currently defined native VS file type. For example, consecutive, relative, and indexed files are supported.

Q9. Isn't just having one VDISK or DMS session per 2258 Controller restrictive?

A9. The statement that you can only have one session is misleading. It does not mean only one workstation has access to VS disks or DMS. It means you can only log on to the VS for disk tasks once per 2258 Controller. Hence, you could have every partition doing a different application but storing and accessing their files on the VS. In addition, it can be a mix of both VDISK and DMS per application, all at the same time.

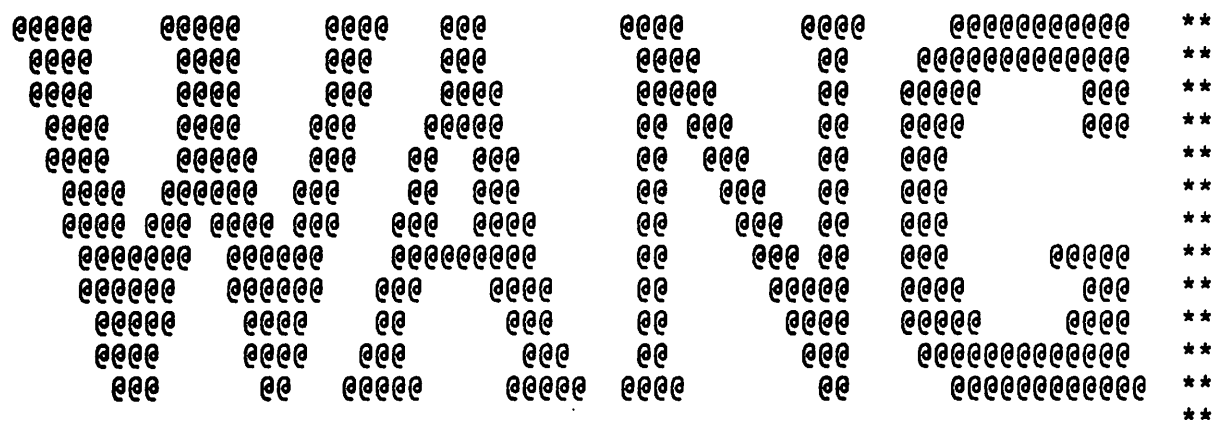
Q10. I haven't been trained on the 2200. How or where can I get help in calling on the 2200 users in my territory?

A10. Every district has 2200 VARs either located within or servicing their district who know and understand the 2200. Plans should be made to utilize these resources by coordinating through your district's DAM (district applications manager).

ADDITIONAL INFORMATION

This article was prepared by 2200 Product Planning and Management. For additional information, contact SMART.

VS # 015



CUSTOMER ENGINEERING

FINAL

MAINTENANCE PLAN

VS/2200 NEW PRODUCTS

March 31, 1986

2200/VS Local Communication Option
Model Number 2258

Maintenance Plan Number VS 015

New Products Engineer
Halton Woods

New Products Manager
Ibrahim Azar

Product Line Manager
Ed Skillings

Product Line Director
Henry A. Schinnagel

TABLE OF CONTENTS

I. PRODUCT DESCRIPTION

A. OVERVIEW OF THE PRODUCT

The purpose of the 2200/VS Local Communication Option is to provide the 2200 User with a migration path into the VS environment. This objective will be accomplished by providing a high speed data link that will allow the 2200 System to communicate with and co-exist in a VS environment. This communication link is provided by combined software and hardware that will allow the 2200 system to communicate with the VS system as though it were a standard 2200 type peripheral and the VS to communicate with the 2200 in a similar manner.
The VS/2200 system configuration made possible by this product will provide the 2200 User with the following services:

VDISK - 2200 access to 2200 virtual disks residing on the VS.
VSDMS - System and filing services (DMS) accessible from the 2200.
VSWE - VS Workstation Emulation (DP) on the 2200.

B. SIMILARITIES/DIFFERENCES (with other WANG products)

1) Software:
The 2200/VS Local Communication Option provides services for the 2200 similar to those provided to the Wang Professional Computer by PC Multi Window Services.

2) Hardware:
The 2200/VS Local Communication Option PCB is a single multi layer board similar to other 2200 Interface/Controller boards designed for the 2200 I/O Bus.

3) Other:
The 2200/VS Local Communication Option is based on the PC 928 board design with the added capability of responding to the 2200 as a disk controller.

C. ANNOUNCE/FIRST CUSTOMER SHIPMENT DATE

1) Domestic:	Announce: July, 1986 Volume Ship: August 1, 1986	FCS: August 1, 1986
2) International:	Announce: July, 1986	FCS: August 1, 1986

D. SERVICE OFFERINGS/WARRANTY

This product will be installed by Customer Engineering personnel, and maintained by Customer Engineering with On-Site service.

This product will be covered by the standard Wang 90 day warranty.

E. SPECIAL PROGRAM/PROCEDURES

N/A

F. MAJOR COMPONENTS

The 2200/VS Local Communication Option, Model Number 2258 will consist of the following hardware and software components.

1) Interface/Controller Hardware:
This Z80 based board will provide and control the interface between the 2200 Host I/O bus and the 928 type link to the VS system. The hardware required to accomplish this task is divided into three general sections.

a) The 2200 interface section of the board will provide for the hardware interface of the 2200 I/O bus to the Z80 bus. This section of the board will provide switch selectable device addressing for two distinct 2200 device types (2200 type disk and general purpose communication). These addresses will be used during VS Workstation Emulation and for VDISK and VS File Services operations.

b) The control section of the board will contain a Z80A processor, CTC (counter timer circuit), 64 Kbytes of DRAM (main memory) plus 16 Kbytes DRAM (auxiliary memory), DRAM controller, and support circuitry. The Z80A will run at 4 MHz and handle data processing. The Z80A will also handle communications with the VS Master via the use of a semaphore register in the on-board main memory.

c) The 928 Data Link section consists of the WL-2001 Data Link Chip and support circuitry. This section provides communication between the Data Link board and the VS Master by transferring data via the Z80A semaphore register.

2) Interface/Controller Software:
Software to support the functionality of this product will be executing in three areas.

a) BASIC-2 code executes on the 2200 to provide a user friendly method of accessing the VS for file access or workstation emulation.

b) Z80 code executing on Interface/Controller board will act as the bridge between the 2200 and VS functions.

c) VS code executing on the VS will provide the VS File Server and VS Workstation Task functions.

G. CONFIGURATION REQUIREMENTS

Each 2200/VS Local Communication Option board will be installed in one I/O slot of the 2200 CPU cabinet and will be cable connected to the VS system via one dual coax cable. The 2200 system will require a minimum of 28K control memory and Operating System revision level 2.7 or higher. VS Operating System release 7.10.00 or higher will provide the VS support for this product.

II. MAINTENANCE PHILOSOPHY

A. Maintenance Objectives

1) C.E. Level:
This product will function as part of an overall system that includes items from the VS and 2200 product lines. Therefore effective maintenance of a system that includes this option will require the following:

a) Skillful cause analysis at the system level.

b) Knowledge of the diagnostics on the VS for the 928 link.

c) Knowledge of the diagnostics on the 2200 system.

d) Knowledge of the overall system configuration.

2) Maintenance Procedures:
Maintenance on this product will be performed on-site by a Wang Customer Engineer. The diagnostics provided for this product will allow the C.E. to isolate hardware failures to the board level. When a board failure occurs, that board will be replaced with a board from C.E. stock and the bad board returned through C.E. logistics channels for repair.

B. Types of contract to be offered

On-Site Maintenance Contracts will be offered.

C. P.M. requirements

1) Customer performed:
To insure proper operation of this product, and the system in which it is installed, the Customer should observe the Environmental Considerations outlined in the CUSTOMER SITE PLANNING GUIDE (part # 700-5978) section 4.

2) WANG C.E. performed:
This product will not require P.M. However, a visual inspection of the interface board and cable would be appropriate as part of the P.M. done on the system in which it is installed.

a) Interval: N/A

b) Parts/Consumables required: N/A

c) Time to perform: N/A

D. Diagnostics required:

1) VS On Line Data Link Diagnostic
2) 2200 Verification Test
3) On Board BIT (Built In Test)

III. TRAINING

The 2200/VS Local Communication Option will be included in the 2200 System training class. Previously trained 2200 Customer Engineers will be updated via the Technical Service Bulletin (TSB) and Product Maintenance Manual.

A. CUSTOMER ENGINEER COURSE

1) COURSE OBJECTIVE:
The training objective will be to provide information that will enable the Wang Customer Engineer to meet the Maintenance Objectives for this product. These Maintenance Objectives are detailed in section II of this plan.

2) TIMETABLE and FORMAT:
This product will be included in the 2200 System class beginning in Q1 FY87. The Product Maintenance Manual and TSB will be distributed before FCS date.

3) PREREQUISITES:
The 2200 System Course prerequisites are:

a) 6 months field experience following New Hire Training.

b) Complete prerequisite program: CE Reference Guide Vol II (P/N 729-1423) Chapter 6, 7 and 8 and demonstrate proficiency in 2200 System Power Up and System Generation during testing at the Technical Training Center before start of class.

B. SALES SUPPORT COURSE

1) TIMETABLE and FORMAT
TBD

IV. SPECIAL TOOLS/TEST EQUIPMENT

No unique items required to service this product.

V. OPERATING ENVIRONMENT

A. TEMPERATURE RANGE

Storage (packaged)	0 to 120 deg f	(-17 to 50 deg c)
Operating	60 to 90 deg f	(16 to 28 deg c)

B. VOLTAGE RANGE

This product will require +5 VDC to be supplied by the 2200 system in which it is installed.

C. HUMIDITY RANGE

Storage	(packaged)	10% to 90%
Operating		40% to 60%
Wet Bulb Temperature		75 deg f max.

D. PHYSICAL SPECIFICATIONS

Height	7 inches	17.5 centimeters
Width	12 inches	30 centimeters

E. SERVICE SPACE REQUIREMENTS

No additional service space will be required for this product. Observe the service space requirements for the 2200 CPU in which the product is installed.

F. INPUT CURRENT

This product will require +5 VDC at 2.0 AMPS to be supplied by the 2200 system in which it is installed.

G. INPUT POWER

Each 2200/VS Local Communication Option board installed will result in an additional 9 watt load on the power supply. This additional load results in a trivial increase in input power requirements.

H. POWER FACTOR

This product will have no measurable effect on the power factor of the system in which it is installed.

I. HEAT LOSS

34 BTU/hr (8.5 KgCal/hr.)

J. LEAKAGE CURRENT (grounding requirements)

N/A

VI. POWER CORD DATA

A. PLUG TYPE
N/A

B. LENGTH
N/A

VII. DOCUMENTATION LIST

A. PRINTS:.....210-8576

B. MAINTENANCE MANUAL:.....741-1723 Available by FCS

C. VENDOR MANUALS:.....N/A

D. DIAGNOSTIC ERROR LISTINGS:.....Included in Maintenance Manual

E. P.M. PROCEDURES:.....N/A

F. REPAIR PLAN:.....2258 Repair Plan # 553-0

G. SALES LITERATURE:.....Product Data Sheet by FCS

H. OPERATORS' GUIDE/USER INFORMATION:...715-0562 Available by FCS

APPENDICES

MARKETING FORECAST

	Q1 FY87	Q2 FY87	Q3 FY87	Q4 FY87
DOMESTIC	90	33	50	60
INTERNATIONAL	60	22	30	50
TOTAL	150	55	80	110

PRODUCT MATURE PERFORMANCE PREDICTED

Model Number	Product Description	Service Parameter	Rate per Year	Time (hours)
2258	2200/VS LCO	Field Failures	0.15	
		Calls	0.21	
		MTTR		1.00
		Call Duration		2.05
		Installation Time		1.50
		PM Calls	0.00	
		PM MTTR		0.00
		FCO Calls	0.00	
		FCO MTTR		0.00
		Upgrades/Model	0.00	
		Upgrade Install Time		0.00

PRODUCT ANALYSIS WITH GROWTH

Product Field Failures/Year and Calls/Year by Month after Installation

Model Number: 2258

Product Description: 2200/VS Local Communication Option

	Month after Installation							
	1	2	3	4	5	6	7	8+
Field Failures/Year	0.40	0.16	0.15	0.15	0.15	0.15	0.15	0.15
Calls/Year	0.58	0.31	0.23	0.21	0.21	0.21	0.21	0.21

NOTE:

Every effort has been made to include the most current information available but, these part numbers are subject to change.

Customer Service Logistics will provide updated, released part numbers through the normal RSL process.

FRUs, CRUs,

part ##	DESCRIPTION	FRU	CRU	Unique	stocking location B	A	H
210-8576	Interface/Controller Board	X		X	X		

PARTS LIST

Diagnostic Part Number: TBD

Parts required for P.M.: N/A

MIKE THOMPSON (1)
M/S 0126

2200 TO VS LOCAL COMM OPT. 210-8596

2258 Local Communications Option
Beta Test Hardware Set-Up Instructions

A) 2258 L.C.O. Overview

The purpose of the 2200/VS Local Communication Option is to provide the 2200 User with a migration path into the VS environment. This objective will be accomplished by providing a high speed data link that will allow the 2200 System to communicate with and co-exist in a VS environment. This communication is accomplished by combined software and hardware that will allow the 2200 system to communicate with the VS system as though it were a standard 2200 type peripheral and the VS to communicate with the 2200 in a similar manner.
The VS/2200 system configuration made possible by this product will provide the 2200 User with the following services:

1) VDISK - 2200 access to 2200 virtual disks residing on the VS.
2) VS system and filing services (DMS) accessible from the 2200.
3) VSWE - VS Workstation Emulation (DP) on the 2200.

NOTE NOTE NOTE NOTE NOTE
At the beginning of the Beta Test Cycle only VS Workstation Emulation will be available. The MicroCode to support VDISK should be available in late April. This VDISK MicroCode will be distributed to the Beta Sites and the supporting District/Branch when it is ready.

B) Hardware/Software General Description

The 2200/VS Local Communication Option, Model Number 2258 will consist of the following hardware and software components.

1) Interface/Controller Hardware:
This Z80 based board will provide and control the interface between the 2200 Host I/O bus and the 928 type link to the VS system. The hardware required to accomplish this task is divided into three general areas.

a) The 2200 interface section of the board will provide for the hardware interface of the 2200 I/O bus to the Z80 bus. This area of the board will provide switch selectable device addressing for two distinct 2200 device types (2200 type disk and general purpose communication). These addresses will be used during VS Workstation Emulation and for VDISK and VS File Services operations.

b) The control section of the board will contain a Z80A processor, CTC, 64 Kbytes of DRAM (main memory) plus 16 Kbytes DRAM (auxiliary memory), DRAM controller, and support circuitry. The Z80A will run at 4 MHz and handle data processing. The Z80A will also handle communications with the VS Master via the use of a semaphore register in main memory.

c) The 928 Data Link section consists of the WL-2001 Data Link Chip and support circuitry. This section provides communication between the Data Link board and the VS Master by transferring data via the Z80A semaphore register.

COMPANY PROPRIETARY

2) Interface/Controller Software:
Software to support the functionality of this option will be executing in three areas.

a) BASIC-2 code executes on the 2200 to provide a user friendly method of accessing the VS for file access or workstation emulation.

b) Z80 code executing on Interface/Controller board will act as the bridge between the 2200 and VS functions.

c) VS code executing on the VS will provide the VS File Server and VS Workstation Task functions.

C) Configuration Guidelines

Typical 2200/VS configuration is shown in Attachment 1.

1) VS Configuration:
The 2258 is not supported in the current VS OS release. The VS microcode required to support the 2200 Emulation is contained in file @2258MWS. For this test VS OS support for this option can be achieved by following this procedure.

a) Determine if ether 2256MWS or 4230MWS is not being used in the present VS configuration. For this example assume that 2256MWS is not being used.

b) Scratch the file @2256MWS in Library @SYSTEM@ on the system volume.

c) Copy file @2258MWS into library @SYSTEM@ on the system volume and rename it 2256MWS.

d) In GENEDIT on the VS system configure a port for the 2258 L.C.O. as a 2256MWS workstation (2256 Multi Window Workstation with 4 windows). NORMALLY GEN'D AS A 2258 CLUSTER DEV, 4 DEVICES/1 PORT

e) Attach dual coax cable to the 928 port configured for this option in step (d) and proceed.

2) 2200 System Configuration:
Each 2200/VS Local Communication Option board will be installed in one I/O slot of the 2200 MVP, LVP or MicroVP CPU cabinet and will be cable connected to the VS system via one dual coax cable.

NOTE: The 2258 Local Comm. Option board is an oversized board (same size as the MXE Controller) therefore it will not fit in the I/O slot under the cooling fan in those MVP's that have the large cooling fans. This problem was identified in August of 1978 in Service Newsletter # 121 (copy attached). THIN FANS 400-1029

The diskette marked 2258 WSE contains the 2200 Basic-2 code required to support VS Workstation Emulation on the 2200. Insert this diskette into the 2200 disk drive. SYSTEM MUST BE UP & RUNNING. LOAD DCR "2258 WSE". NAME MAY CHANGE.

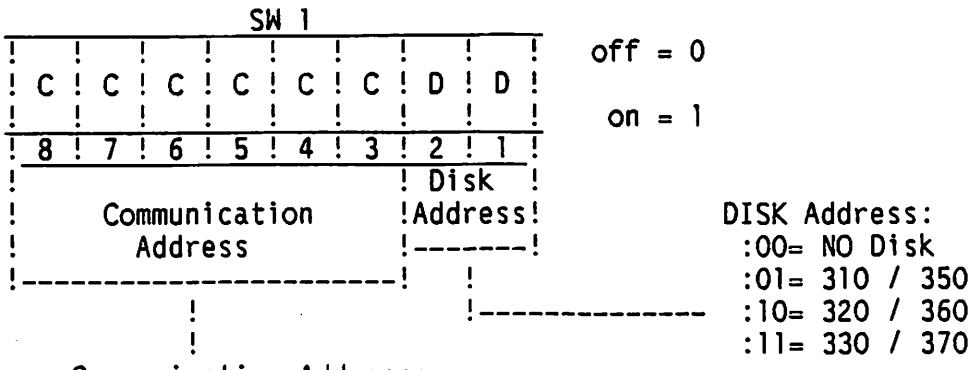
TODAY THE @2258MWS UCODE MUST REPLACE EITHER THE @2256MWS OR 4230MWS. THE @2258MWS UCODE WILL NOT SUPPORT THE 4230 OR 2256 MW. O/S 6.43 SHOULD RESOLVE WHERE ALL UCODE CAN RESIDE SIMULTANEOUSLY.

6.43 SUPPORTS EMULATION ONLY.

Refer to the board layout (attachment 2) and the following addressing information to set the controller address and add the appropriate device numbers to the 2200 Device Table.

Switch #1 is an 8 Bit switch bank used to set the combined Communication and Disk address for each controller.

The Communication address is set with 6 high bits and the Disk address is set with the 2 low bits.



Communication Address:
Any combination possible with these six bits that will produce a device address that is NOT ALREADY USED IN YOUR SYSTEM.

EXAMPLE:1

	Communication Address						PLUS	DISK ADDRESS		EQUALS	COMBINED SWITCH SETTING
Bit Weight	80	40	20	10	08	04		02	01		
off = 0	X							X	X		
	C	C	C	C	C	C		D	D		
on = 1		X	X	X	X	X					
	8	7	6	5	4	3		2	1		
	7				C		+	0		=	7C

CONFUSING

The Communication Address in this example is 7C and the Disk setting is 00 for NO Disk. This produces a combined switch setting of 7C.

The 2200 will communicate with this controller using three addresses they are:
The communication address plus the 01 bit for Status (7C + 1 = 7D).
The communication address plus the 02 bit for Command (7C + 2 = 7E).
The communication address plus the 03 bit for Data (7C + 3 = 7F).

For this example, the following device numbers will be added to 2200 Device Table: /07D, /07E and /07F. The Disk address of 00 indicates NO Disk for this controller.

The board sent with these instructions will be set to Communication Address 7C and a Disk address of 00 (no disk). Therefore the 2200 device table will need to include /07D, /07E and /07F. If additional boards are installed in the 2200 they will require different addresses. Attachment 3 contains examples of other switch settings and addresses that may be used. These examples also include disk address settings that may be used when VDISK is available.

D) Diagnostics

The 2258 LCO board has a Built In Test (B.I.T) that will run each time the system is powered up. The status of the BIT is displayed by a red LED located on the front mounting plate of the option board. The LED should come on when the system is powered on and go out after 8 to 10 seconds indicating that the BIT has completed. If a fault is detected during the BIT the LED will remain on indicating a board failure.

E) Running VS Workstation Emulation on the 2200

The following pages are taken from a DRAFT COPY of the 2200 LCO User Guide. Follow these guidelines to run workstation emulation.

NOTE: 1) The 2200 workstations (2236/2336-DE/DW) have function keys numbered 0 to 31. When VS Workstation Emulation is running these function keys will be numbered 1 to 32 as with other VS workstations.

2) The 2200 workstations (2236/2336-DE/DW) do not have HELP keys. When VS Workstation Emulation is running the CONTINUE key will function as a HELP key.

3) VS applications that download microcode to the workstation will not work on the 2200 running VS Workstation Emulation. An example is VS WP.

4) The EDIT key is used after logging off the VS to get from the VS LOGON screen to the EXIT FROM EMULATION screen.

PRELIMINARY
FOR REVIEW
PURPOSES ONLY

CHAPTER 3 VS WORKSTATION EMULATION

3.1 INTRODUCTION

This chapter provides step-by-step instructions on using the VS Workstation Emulation (VSWE) facility. This facility allows you to access the VS from the 2200 system, and use the VS DP (data processing) facilities. From VSWE, you can initiate a session with the VS in the standard application access method through a series of user-friendly Wang menus. During the session, you can transmit keystrokes and screens back and forth between the 2200 and the VS. It should be noted that any VS program that downloads microcode to a terminal is not supported by VSWE.

VSWE is also the gateway for activating the VS File Services since you use this software to logon to the VS and then attach to the VS File Services software.

3.2 LOGGING ONTO THE VS AS A DP USER

To use VSWE, you must log onto the VS as a DP user. This is accomplished by following the procedure outlined below.

1) Insert the 2200 LCO software distribution diskette into the disk drive.
2) Type in SELECT DISK B10. ADDRESS OF DISK DRIVE BEING USED.
3) Press the LOAD and RUN keys in that order.

When the software is successfully loaded, the Workstation Emulation screen is displayed. Select the 2258 Workstation Emulation option from the Workstation Emulation screen (refer to Figures 3-1 and 3-2) and press the RUN key.

LIMINA
FOR REVIEW
PURPOSES

(TO BE SUPPLIED)

Figure 3-1. The 2258 Workstation Emulation Menu Structure

FOR REVIEW

```
***** 2258 WORKSTATION EMULATION MENU *****

Select Item with SPACE & BACKSPACE                    Partition x,xxK
Key RUN to execute, CLEAR or PREV SCRN for previous screen.    Terminal x

                    x  2258 Workstation Emulation
```

Figure 3-2. The Workstation Emulation Screen

Selection of this option causes the 2258 Workstation Emulation Controller Address screen to be displayed (see Figure 3-3). On this screen, you can enter the desired communications controller address or take the default address determimed by the 2258 board (e.g., 07C on the example screen shown in Figure 3-3).

```
***** 2258 WORKSTATION EMULATION *****

Enter the Communications Address of the desired Controller
07C
```

Figure 3-3. The Workstation Emulation Controller Address Screen

FOR REVIEW

Pressing the RETURN key from the 2258 Workstation Emulation Controller Address screen causes the program to search for an emulation task associated with this currently active partition. At this point, the following conditions can occur:

1) If there is an active emulation task, the current VS screen is displayed.
2) If there is no active emulation task and you logged off the VS before terminating the last emulation, the VS logon screen (refer to Figure 3-4) is displayed.
3) If there is an active emulation task resulting from suspending the workstation emulation from the Exit From Emulation screen (refer to Figure 3-7), the Active Emulation Found screen (refer to Figure 3-6) is displayed.

In case 2, when the VS logon screen is displayed, a VS Procedure language routine can be initiated by logging on with a specified user id. Alternatively, if there is no Procedure Language program incorporated in the VS software, you can supply your assigned user id and password in the appropriate fields on the logon screen (refer to Figure 3-4). When you log onto the VS system and press the RETURN key, the Command Processor screen is displayed (see Figure 3-5).

In case 3, when the Active Emulation Found screen (see Figure 3-6) is displayed, you can perform the following functions:

- Resume Workstation Emulation
- Terminate Workstation Emulation
- Restart Workstation Emulation

FOR REVIEW

```
***** Wang VS Logon *****

Workstation 12 Ready    2:01 pm     Monday     January 27, 1986

                        Hello New User

                    Welcome to Tech Writing     VSJ

Please identify yourself by supplying the following information

                        Your userid   = ___
                        Your password = _____

    and press (ENTER) to logon

    or press (PF11) to enter operator mode immediately
```

Figure 3-4. The Wang VS Logon Screen

```
***** Wang VS COMMAND PROCESSOR *****

Workstation 12 Ready    2:01 pm     Monday     January 27, 1986

                        Hello Bob Johnson

                    Welcome to Tech Writing     VSJ

                Use the Function Keys to Select a Command:

(1)  RUN Program or Procedure              (9)  Enter WORD PROCESSING
(2)  SET Usage Constants                   (11) Enter OPERATOR MODE
(3)  SHOW Program Completion Report        (12) SUBMIT Procedure

(4)  Manage QUEUES
(5)  Manage FILES/LIBRARIES                (13) Send MESSAGE To Operator
(6)  Manage Devices                        (15) PRINT COMMAND Screen
(8)  Manage COMMUNICATIONS                 (16) LOGOFF
```

Figure 3-5. The VS Command Processor Screen

FOR REVIEW

```
***** ACTIVE EMULATION FOUND MENU *****

Select Item SPACE & BACKSPACE                          Partition x,xxK
Key RUN to execute, CLEAR or PREV SCRN for previous screen.    Terminal x

        _ Resume Workstation Emulation
        _ Terminate Workstation Emulation
        _ Restart Workstation Emulation
```

Figure 3-6. The Active Emulation Found Screen

3.3 RUNNING THE 2258 SESSION WITH THE VS

Once you are logged onto the VS and the Command Processor screen is displayed, you can use the VS DP functions as if you were using a VS terminal connected directly to the VS system. An exception to this rule is that no program or function can be used that downloads microcode to a terminal.

NOTE

You should not attempt to use word processing (WP) or any communications emulators because this practice results in destroying the 2258 microcode in the controller.

Equivalent VS function keys on the 2200 DE and DW terminals when operating in the 2258 mode can be found on the 2200/2258 Function Strip (refer to Appendix A).

FOR REVIEW

When you are finished with the VS session, log off the VS and press the EDIT key to return to the 2200 mode.

NOTE

You should never terminate the emulation session before logging off the VS. This practice leaves the emulation hanging in the VS, and the next emulation user will get an abandoned screen rather than the desired VS logon screen. The VS does not automatically log off a turned-off workstation.

When the EDIT key is pressed, the Exit From Emulation Screen is displayed (refer to Figure 3-7).

```
***** EXIT FROM EMULATION MENU *****

Select Item with SPACE & BACKSPACE                    Partition x,xxK
Key RUN to execute, CLEAR or PREV SCRN for previous screen.    Terminal
x

                Resume Workstation Emulation
                Suspend Workstation Emulation
                Terminate Workstation Emulation
```

Figure 3-7. The Exit From Emulation Screen

FOR REVIEW

Resuming The Workstation Emulation

If you decide that you are not finished with the VS session after pressing the EDIT key, and you want to continue with the emulation; position the acceptance block to the Resume Workstation Emulation option on the Exit From Emulation screen. Press the RUN key and the VS Logon screen (refer to Figure 3-4) is displayed if you logged off the VS before pressing the EDIT key. If you did not log off the VS before pressing the EDIT key, you are returned to the VS screen that was displayed before you pressed the EDIT key when you select the Resume Workstation Emulation option.

Suspending The Workstation Emulation

If you desire to get out of the VS mode and return to the 2258 emulation at some later time, you should use the Suspend Workstation Emulation option. To use this option, position the acceptance block to the Suspend Workstation Emulation option on the Exit From Emulation screen by pressing the key corresponding to the first character of the option, or by using the SPACE bar; and pressing the RUN key. Now, the system displays the Workstation Emulation screen (refer to Figure 3-2). If you desire to return to the emulation after suspension, select the 2258 Workstation Emulation option on the Workstation Emulation screen. When you select the 2258 Workstation Emulation option after suspending the emulation, the Active Emulation Found screen is displayed (refer to Figure 3-6).

The Active Emulation Found Screen

The Active Emulation Found screen (refer to Figure 3-6) is displayed when the 2258 contains an active emulation session that was suspended before exiting the emulation software. From this screen, you can choose the Resume Workstation Emulation option which causes the VS Logon screen (refer to Figure 3-4) to be displayed (if you are not logged onto the VS), or the last displayed VS screen to be displayed if you are still logged onto the VS.

CONFUSING

From the Active Emulation Found screen, you can also select the Terminate Workstation Emulation option that terminates the emulation session and returns you to the Workstation Emulation screen (refer to Figure 3-1). This option should only be exercised after you have logged off the VS.

The Restart Workstation Emulation option on the Active Emulation Found screen is active only in the VDISK operations (refer to Chapter 4 for complete details).

Terminating The Workstation Emulation

The workstation emulation can be terminated at two different points in the emulation software: from the Active Emulation Found screen (refer to Figure 3-6) and from the Exit From Emulation screen (refer to Figure 3-7). When this option is selected from either of these two screens, you are returned to the Workstation Emulation screen. To terminate the workstation emulation from the Active Emulation Found screen, log off the VS system first and execute the following procedure.

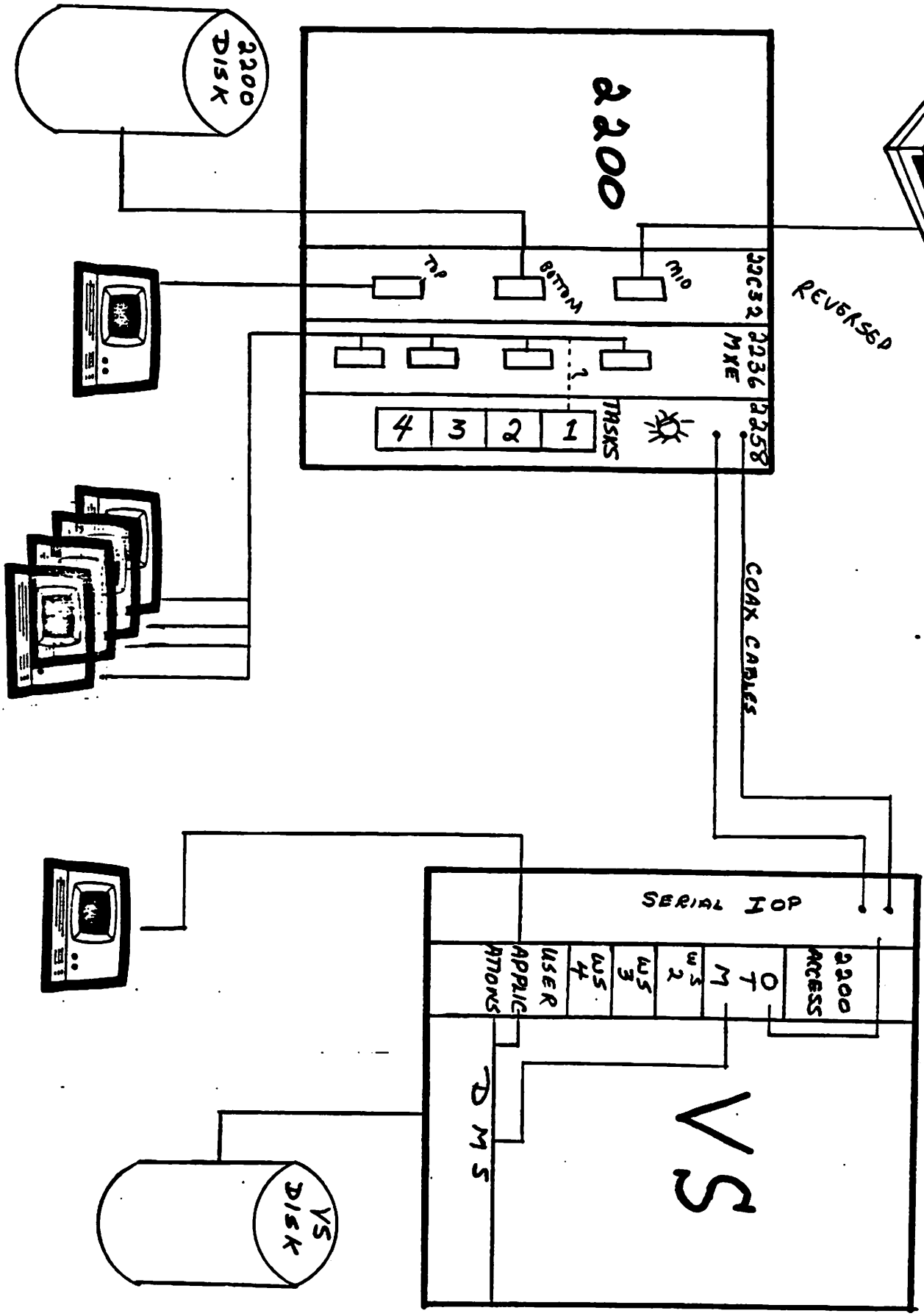
FOR REVIEW

1) Select the Terminate Workstation Emulation option on the displayed screen.
2) Press the RUN key.

To terminate the workstation emulation immediately after completing a VS session (from the Exit From Emulation screen), execute the following procedure.

1) Log off the VS system.
2) Press the EDIT key to display the Exit From Emulation screen.
3) Select the Terminate Workstation Emulation option on the displayed screen.
4) Press the RUN key.

ATTACHMENT 1



2200 TO VS LOCAL COMMUNICATION OPTION

HRG 1-03-84

EXAMPLE:2

	Communication Address						PLUS +	DISK ADDRESS		EQUALS =	COMBINED SWITCH SETTING
Bit Weight	80	40	20	10	08	04		02	01		
off = 0	X					X		X			
	C	C	C	C	C	C		D	D		
on = 1		X	X	X	X				X		
	8	7	6	5	4	3		2	1		
		7			8		+		1	=	79

The Communication Address in this example is 78 and the Disk setting is 1 for Disk address of 310. This produces a switch setting of 79.

For this example, the following device address will be added to 2200 Device Table: /079, /07A and /07B. The Disk address of /310 will also be added to the device table.

EXAMPLE:3

	Communication Address						PLUS +	DISK ADDRESS		EQUALS =	COMBINED SWITCH SETTING
Bit Weight	80	40	20	10	08	04		02	01		
off = 0	X				X				X		
	C	C	C	C	C	C		D	D		
on = 1		X	X	X		X		X			
	8	7	6	5	4	3		2	1		
		7			4		+		2	=	76

The Communication Address in this example is 74 and the Disk setting is 2 for Disk address of 320. This produces a switch setting of 76.

For this example, the following device address will be added to 2200 Device Table: /075, /076 and /077. The Disk address of /320 will also be added to the device table.

EXAMPLE:4

	Communication Address						PLUS +	DISK ADDRESS		EQUALS =	COMBINED SWITCH SETTING
Bit Weight	80	40	20	10	08	04		02	01		
off = 0	X				X	X					
	C	C	C	C	C	C		D	D		
on = 1		X	X	X				X	X		
	8	7	6	5	4	3		2	1		
		7			0		+		3	=	73

The Communication Address in this example is 70 and the Disk setting is 3 for Disk address of 330. This produces a switch setting of 73.

For this example, the following device address will be added to 2200 Device Table: /071, /072 and /073. The Disk address of /330 will also be added to the device table.

WANG

ECO

ECO NO. 40540

SHEET 1 OF 9

ORIGINATOR	Mohamed Makhlouf/Dave Claffie	M/S	1439	EXT. 77159/72082	DATE 04/30/86
WRITTEN BY	Jeannine Roy	M/S	12188	EXT. 76930	DATE 04/30/86

PART NO. 510-8576	DESCRIPTION 2200/VS Interface
DWG NO. 8576	
MODEL NO. 2258 LCO	PEP # PEP# H0104A
CLASS I (II) III	

DESCRIPTION OF CHANGE

Change artwork, assembly drawing, silkscreen, fabrication drawing, sample board, schematic, mechanical outline, parts list and sample board per attached prints and as follows:

Cut etch from L2 pin 3 to L56 pin 8
Tie L56 pin 8 to L76 pin 10.
Tie L33 pin 5 to L76 pin 9
Tie L76 pin 8 to L2 Pin 3
Tie L34 pin 17 to GND
Add SW2 Switch (325-2299)
Show orientation notch for socket at L21.
Show polarity of diodes D1 and D2.

COMPANY CONFIDENTIAL

RECEIVED
JUN 26 1986
PRINT ROOM

Change Hole Legend & Tolerances block as follows:

SYM.	DESCRIPTION	QTY.
D	.043 DIA	4

NOTE TO EDD: Add Mechanical Outline to the 510 History Sheet.
Scrap all 510-8576 rev 0 boards.

Continued on next page

REASON/SYMPTOM FOR CHANGE

To utilize the LED as a flag for parity errors after completion of the PROM diagnostics.
Switch 2 will be added to allow 'Restart' capability to each board without powering system off and on.
L34 pn 17 is addr. bit 8 on 256K sims. This pin must be grounded for the board to accept the 256K Sim.
To correct documentation to reflect the intended design.

78

DOCUMENTS

	REVISIONS FROM	TO
HISTORY SHT. 510	0	1
HISTORY SHT. 210	0	1
ARTWORK		
E-REV.		
ASSY. DWG.		
DRILL DWG.		
SCHEM DWG.		
MECH. DWG.		
CBL DWG.		
S.P.I.		
SPECIFICATION		

CONFORMING AREA	C.E.	REMFG.	DIST.	FINAL ASSY. AREA	SUB ASSY. AREA	NEXT ORDER	INFO ONLY
						X	

CONFORMANCE DATE N/A

APPROVALS

	DATE
ECO CHAIRPERSON	6/25
DES. ENGRG.	5-7-86
CUST. ENGRG.	6/25/86
MFG.	
MTO	
PP&M	
F.C.C.	5/13/86
PROD. SAFETY	
SECURE SYS.	
ORIGINATOR	5-7-86
OTHER	

14-19030 Printed in U.S.A. 5-85-7M

WANG	ENGINEERING CHANGE ORDER CONTINUATION SHEET	DOCUMENT NO.	OLD REV	NEW REV
DOCUMENT TITLE:	THIS ECO SHT, WHEN ATTACHED TO DOCUMENT OF PREVIOUS REV CONSTITUTES THE LATEST DOC.	ECO NO. 40540	SHT 2	OF 9

DESCRIPTION OF CHANGE:

Continued from page one

Change 210-8576-A parts list as follows;

Change L21 from IC SG10527 Mlthic Pwr Dr (376-6013)
to IC WL3004 Mem Arbtr Intfc (376-6016)

Change BOM 209-8576 as follows:

	WLI#	DESCRIPTION	UM	COMP TYPE	QTY	QTY TYPE
ADD	325-2299	Sw PB Spst Mom R/N	EA	1	1	1

Change BOM 210-8576-A as follows:

	WLI#	DESCRIPTION	UM	COMP TYPE	QTY	QTY TYPE
DELETE	376-6013	IC SG10527 Mlthic Pwr Dr	EA	1	1	1
ADD	376-6016	IC WL3004 Mem Arbtr Intf	EA	1	1	1

WANG

ENGINEERING CHANGE ORDER
MANUFACTURING IMPACT SHEET

ECO NO. 40540
SHEET 3 OF 9

PART NO./ASSY NO. 376-4016

MATERIAL DISPOSITION	QUANTITY	DISP	COST
PARTS ON HAND	1600		
PARTS ON ORDER	–		
ASSEMBLIES IN PROCESS	–		
FINISHED SUB ASSEMBLIES			
ASSEMBLIES IN UNITS			

PREPARATION, IMPLEMENTATION COSTS

DISPOSITION

1. USE AS IS
2. REWORK
3. SCRAP/SALVAGE
4. NEXT ORDER
5. SEE REMARKS

AFFECTED SITES

TEWKS	☐	BOS	☐	HONG	☐
PKWD	☐	IR	☐	MEX	☐
METH	☐	PR	☐	____	☐
LOW	☐	SCOT	☐	____	☐
HLOK	☐	AUST	☐	____	☐
PT BLVD	☐	TW	☐	____	☐

COST OF INCORPORATION

PRODUCT COST CHANGE PER UNIT PRODUCTION QUANTITY FROM MPP IN WKS ____ WKS		
PRODUCT COST CHANGE (EXTENDED)		
TOTAL COST (OR COST SAVINGS) OF ECO		

APPROVALS

ECO ADMIN	Paula Benoit 6/4/86
MFG ENG	Ed Dagneault - P.B. 6/3/86
QUALITY	[illegible] 6/4/86
MATERIALS	[illegible] 5/30/86
PROD. CONTROL	
FINANCE	
RE-MFG	D. Stanat (DES)
OTHER	Rick Sigman 5/30/86

REMARKS

Not to apply to Pinkwood. (CANNOT BE REWORKED)

MPP-50

250 RO's bought

Scrap all remaining 510-8576 upon completion of ~~80~~ to meet MPP demands.

SMS EFFECTIVITY DATE 7/10

DOCUMENTATION ONLY ☐

WANG

ENGINEERING CHANGE ORDER
CUSTOMER ENGINEERING IMPACT SHEET

ECO NO. 40540
SHEET 4 OF 9

ALL UNITS	☐
PROB ONLY	☐
INFO	☒
FCO REQUIRED	☐
IMMED ☐	NEXT CALL ☐
IS A MUB REQUIRED FOR FSC REWORK	☒

IMPACT COMMENTS

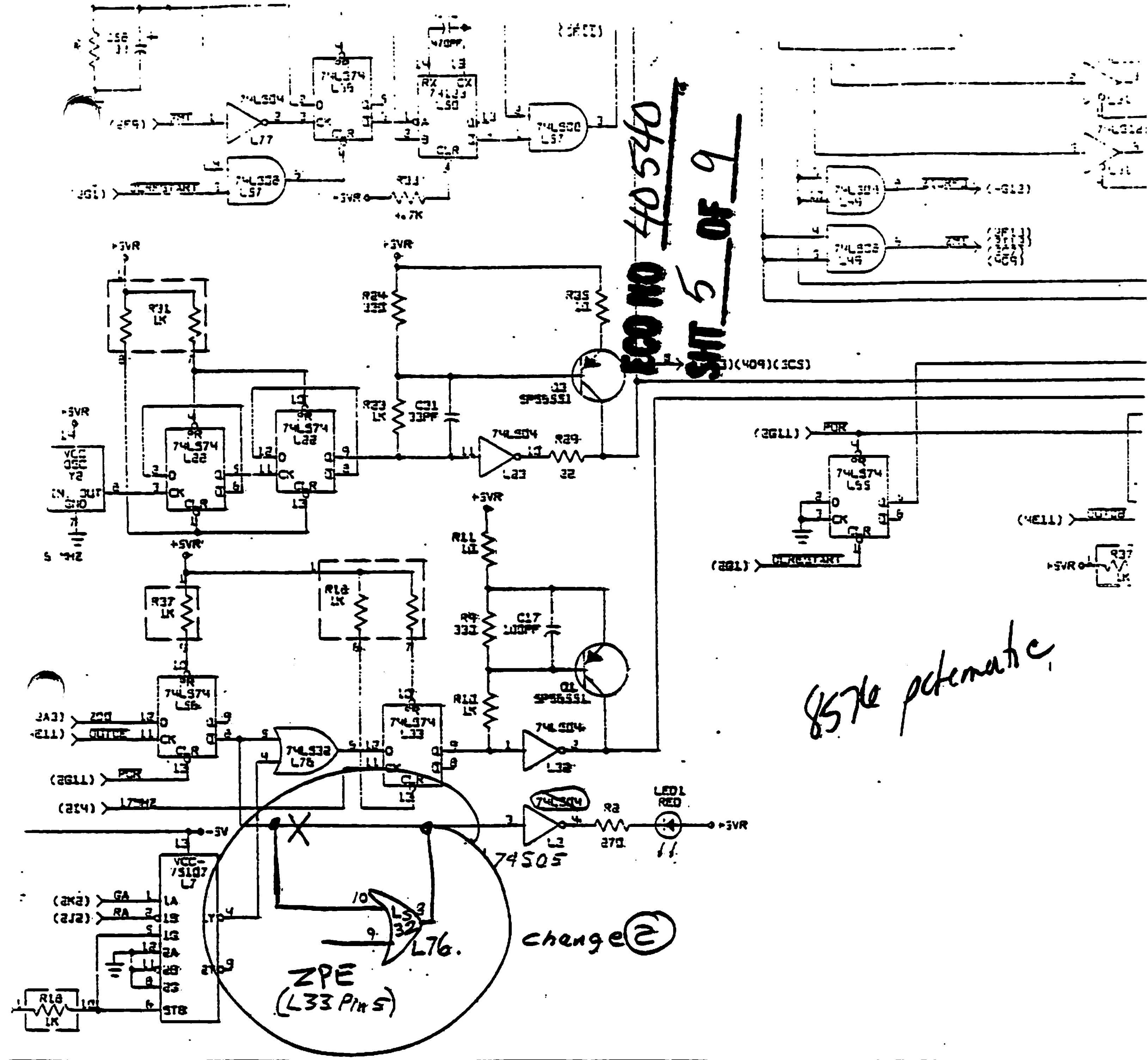
Document with 1443

	DOMESTIC	INTER-NATIONAL
EST. UNIT POP		
EST. SPARE POP		
TOTAL		

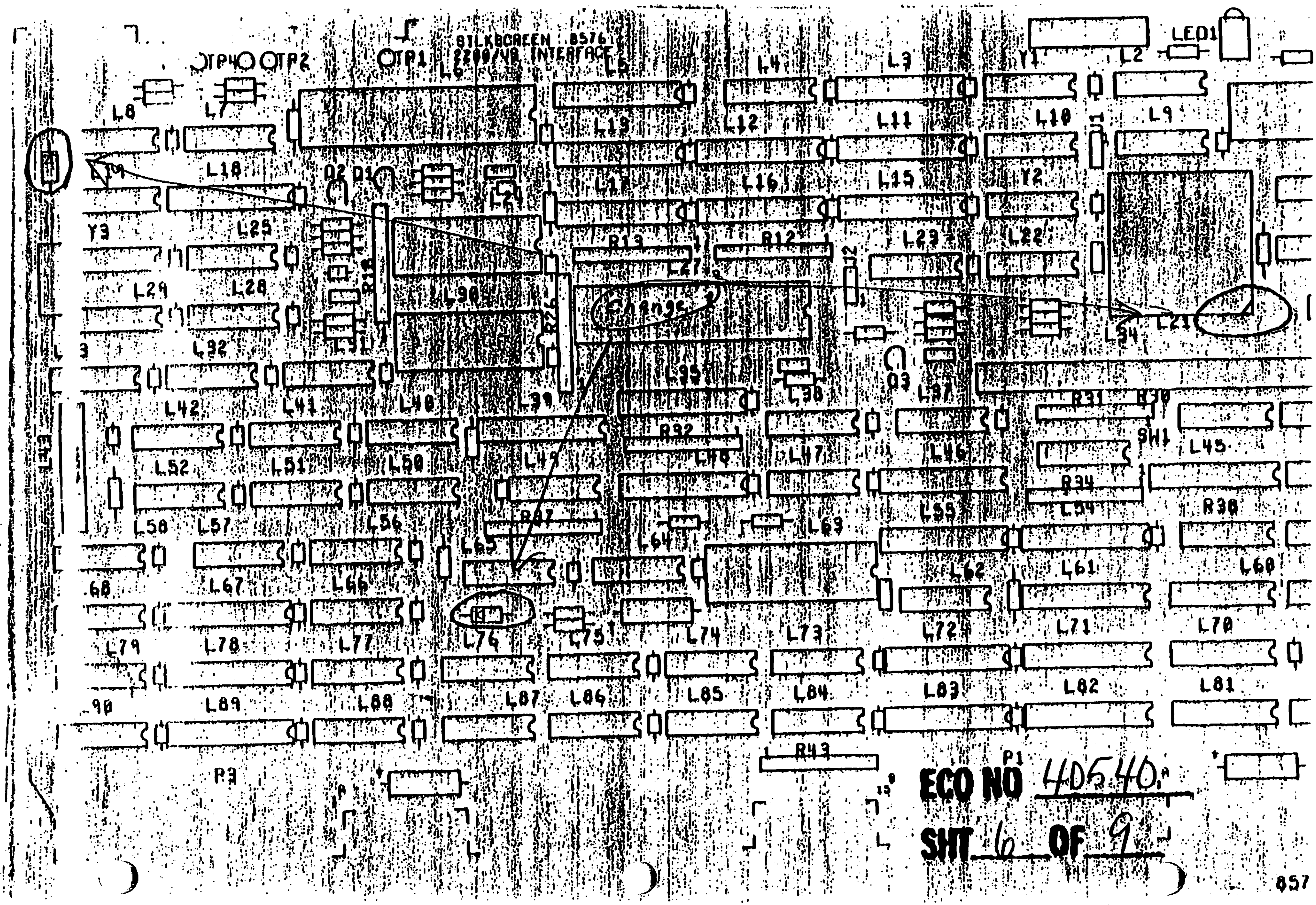
EST. COST IMPACT	APPROVALS	DATE
MATERIAL	TECH OPS	
LABOR	LOGISTICS [signature]	6/3
TOTAL	FSC SUPPORT	
IMPLEMENTATION PERIOD	FINAL [signature]	6/3
ANNUAL COST	OTHER	

GENERAL COMMENTS Not released to field and no spares in CE stock. Repair Center can repair boards. RO should be scrapped when received at FSC for repair.

14 19031 Printed in U.S.A. 5-85-7M



14 13 12 11 10 9 8

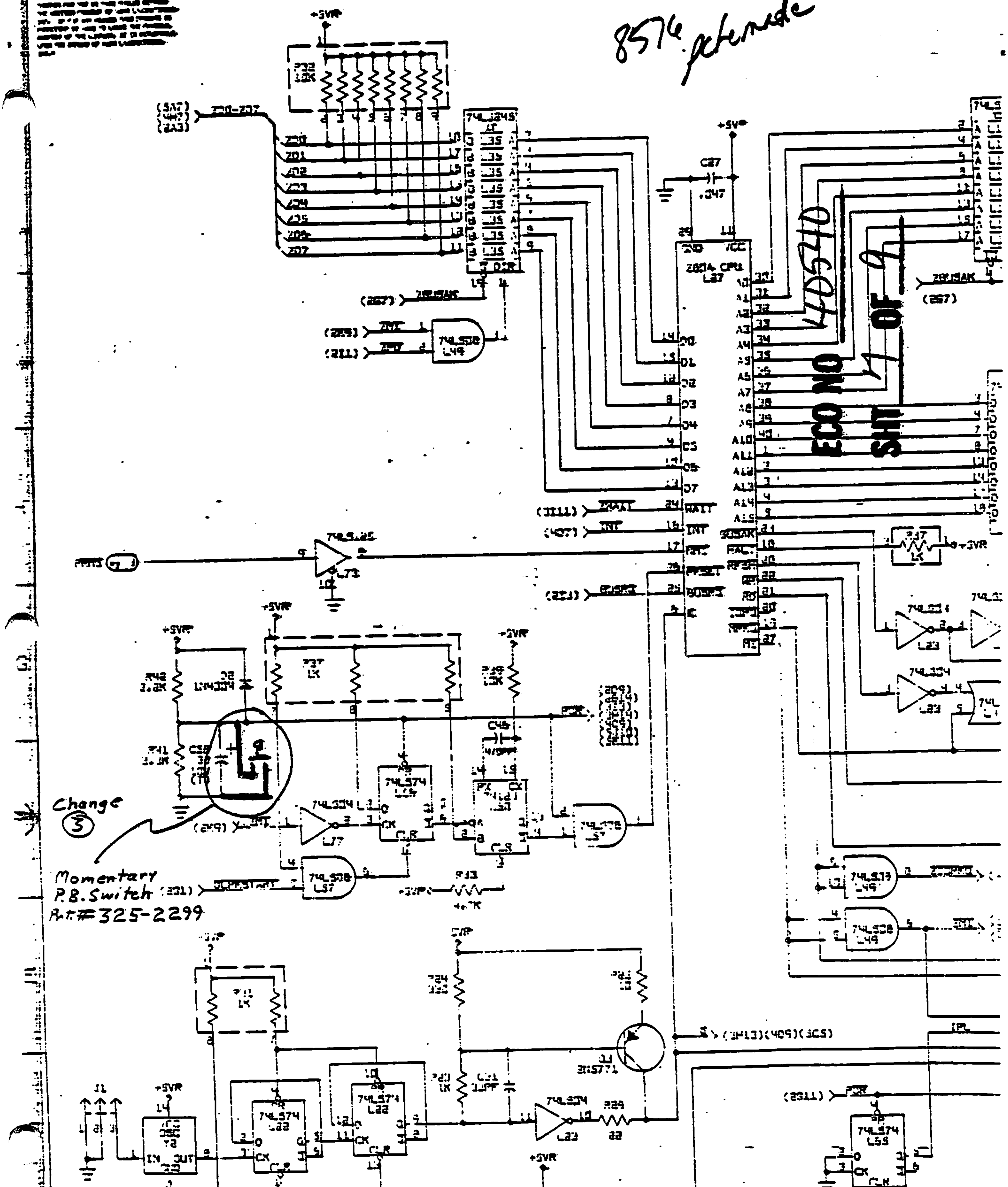


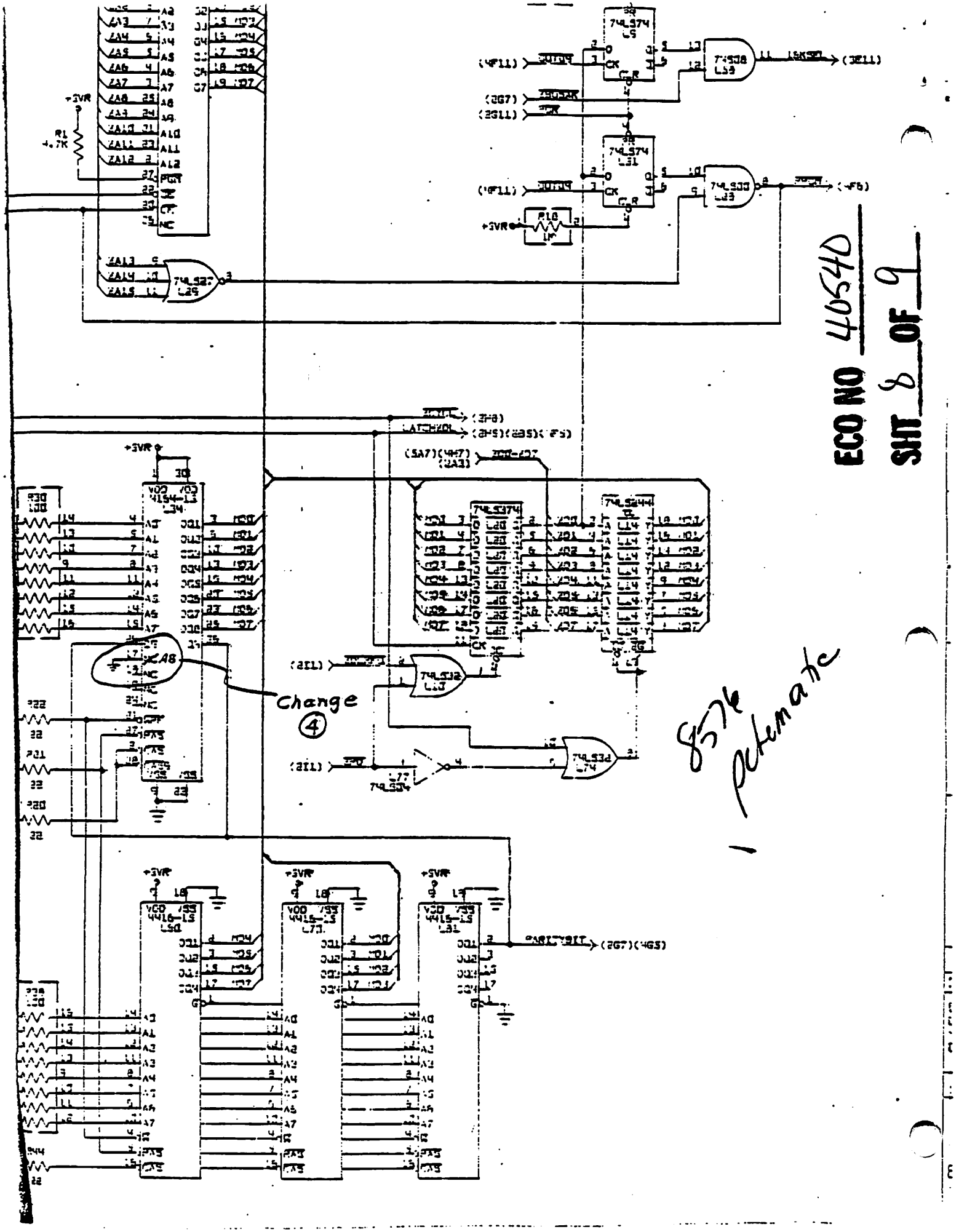
ECO NO 40540

SHT 6 OF 9

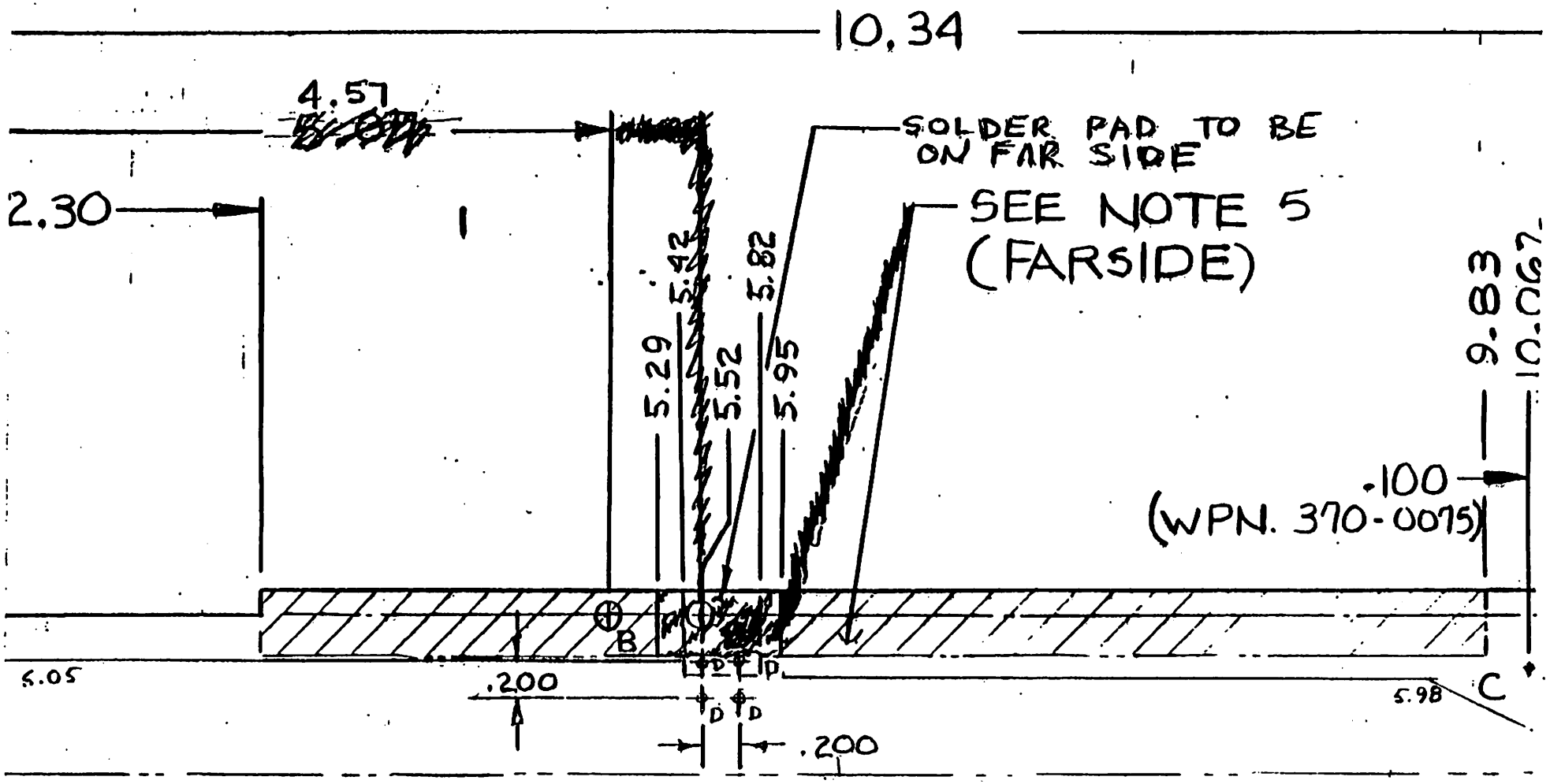
857

8574 schematic




ECO NO 40540
SHT 8 OF 9
Change
(4)
8576 schematic

PAGE B BLOW UP OF PAGE A



8576 M.O. FOR CHANGE (3)

ECO NO 40540

SHT 9 OF 9

WANG LABORATORIES, INC.
ONE INDUSTRIAL AVENUE, LOWELL, MA 01851 • TEL: 617/459-5000, TWX 710-343-6769, TELEX 94-7421

WANG

TECHNICAL SERVICE BULLETIN
SECTION: HardWare Technical

NUMBER: HWT 6321 REPLACES: _____ DATE: 01/06/87 PAGE 1 OF 1

MATRIX ID. 4201 PRODUCT/RELEASE# 2200/VS Local Communication Option

TITLE: 2200/VS Local Communication Option

PURPOSE:

Provide clarification of information provided in the Customer Engineering Product Maintenance Manual (part # 741-1723) for the 2200/VS Local Communication Option.

EXPLANATION:

On page 39 of the first edition of the 2200/VS Local Communication Option Customer Engineering Product Maintenance Manual, there is a statement that indicates 2258 device type support in release 6.43 of the VSOS. That statement is not correct. 2258 device type support was not included in VSOS 6.43. The minimum VSOS release that supports this device is release 7.10.10.

Model 2258 Local Communication Option controller is an oversized board. For this reason, a spacer is used between the controller faceplate and 2200 cabinet I/O slot. The part number for this spacer was not included in the IPB section of the Maintenance Manual. The part numbers for the parts that make up this spacer are:

458-1296 SPACER,FACE PLATE (R.F.)
452-2747 CLIP, SPACER (R.F.)

NOTE: This spacer is included with the Model 2258 Local Communication Option and used with the 210-8576A board. If the 210-8576A board is replaced in the field the spacer should be removed from the old board and installed on the replacement board.

GROUP: VS/2200/OA Hardware New Product Support MAIL STOP: 001220

COMPANY CONFIDENTIAL
WANG Laboratories, Inc.

EXECUTIVE SUMMARY

PRODUCT NAME: 2200/VS DATA LINK (2258)

PRODUCT FAMILY: 2200

PRODUCT OVERVIEW:

The purpose of the 2200/VS Data Link is to allow the 2200 to communicate with and co-exist in a VS environment. This product is one of the major elements in the total 2200 co-existence/bridge strategy designed to protect our User and Value Added Reseller base. Three services will be provided over this data link. They are:

VDISK - 2200 access to 2200 virtual disks residing on the VS.
VS system and filing services (DMS) accessible from the 2200.
VSTE - VS terminal emulation on the 2200.

ANNOUNCEMENT DATE: TBD

PLANNED FCS: DOMESTIC: JANUARY 1, 1986 INTERNATIONAL: JANUARY 1, 1986

ACTUAL FCS: DOMESTIC: TBD INTERNATIONAL: TBD

TOTAL SHIPPED: 0

IMPACT TO FCS: TBD

MARKETING FORECAST INFORMATION:

	Q3 FY86	Q4 FY86	Q1 FY87	Q2 FY87
DOMESTIC	20	50	60	80
INTERNATIONAL	5	30	50	90
TOTAL	25	80	110	170

MAINTENANCE:

BII will validate the functional operation of the 2258 board by exercising the major block components such as Memory and CPU. A Diagnostic LED will be used to report errors. Errors will also be reported on work station.

SPECIAL TOOLS AND TEST EQUIPMENT:

No special tools or test equipment will be required to service this option in the field. The standard CE tool kit will be used.

TRAINING:

This option should be included in the 2200 on-line class. Need to determine what impact this product will have on VS training.

LOGISTICS:

Faildata will be distributed as soon as hardware design is complete. Will need to determine where and how many spares to stock.

DOCUMENTATION:

This product will be used to link the LVP, MVP or MicroVP to a VS system. A stand alone Maintenance Manual is planed.

EXECUTIVE SUMMARY

PRODUCT NAME: VS Small Cable Concentrator

PRODUCT FAMILY: Low End VS

PRODUCT OVERVIEW:

The VS Small Cable Concentrator will be a stand alone cabinet with a power supply and space for four I/O panels. The purpose of this optional cabinet is to free up back panel space on the VS 65 (and low end VS) for TC panels, asynchronous panels or disk controller panels.

The VS-SM-CC may house a combination of the following:
1-EAPA (Electrical Active Port Assemblies)
2-WangNet Panels
3-Fiberway Panels

The VS Small Cable Concentrator will be offered as:
1-A field upgrade for customers whose VS configuration requires more back panel space.
2-An optional part of the VS System package that will allow a wider range of system configurations.

ANNOUNCEMENT DATE:September 30, 1985 issue of FOCUS

PLANNED FCS: DOMESTIC:October 15, 1985 INTERNATIONAL:October 15, 1985

ACTUAL FCS: DOMESTIC: TBD INTERNATIONAL: TBD

TOTAL SHIPPED: 0

IMPACT TO FCS: TBD

MARKETING FORECAST INFORMATION:

	Q2 FY86	Q3 FY86	Q4 FY86	Q1 FY87
DOMESTIC	9	63	90	63
INTERNATIONAL	1	7	10	7
TOTAL	10	70	100	70

MAINTENANCE:

Unit will be supported by standard CE on-site service methods.

SPECIAL TOOLS AND TEST EQUIPMENT:

No special tools or test equipment will be required to service this option in the field. The standard CE tool kit will be used.

TRAINING:

The VS Small Cable Concentrator will be included in the VS 65 on-Line training class. Previously trained Low end VS Customer Engineers will be updated via the T.S.B. and CE Manual.

LOGISTICS:

Spares will be stocked at the FSC's.

DOCUMENTATION:

Customer Engineering Maintenance Manual will be produced for this product.

EXECUTIVE SUMMARY

PRODUCT NAME: 7500T VS65

PRODUCT FAMILY: LOW END VS Secure System

PRODUCT OVERVIEW:

The purpose of this project is to produce a 7500T approved version of the VS65. The exact configuration will be defined after completion of baseline testing.

The mechanical package for this product will be based on the commercial VS65 cabinet with the modifications required to meet 7500T specifications. Presently (16) printed circuit boards are being evaluated to determine the extent of modification required to bring them into 7500T compliance.

ANNOUNCEMENT DATE: TBD

PLANNED FCS: DOMESTIC: March 1986 INTERNATIONAL: March 1986

ACTUAL FCS: DOMESTIC: TBD INTERNATIONAL: TBD

TOTAL SHIPPED: 0

IMPACT TO FCS: TBD

MARKETING FORECAST INFORMATION:

	Q3 FY86	Q4 FY86	Q1 FY87	Q2 FY87
DOMESTIC	12	28	50	55
INTERNATIONAL	3	3	5	7
TOTAL	12	31	55	62

MAINTENANCE:

This product will be maintained by Customer Engineers that have been trained in the low end VS product line and critical features of this secure system.

SPECIAL TOOLS AND TEST EQUIPMENT:

No special tools or test equipment will be required to service this product in the field. The standard CE tool kit will be used.

TRAINING:

TBD

LOGISTICS:

TBD

DOCUMENTATION:

Customer Engineering Maintenance Manual will be produced for this product.

EXECUTIVE SUMMARY

PRODUCT NAME: VS Small Cable Concentrator for Secure Systems

PRODUCT FAMILY: LOW END VS Secure System

PRODUCT OVERVIEW:
The purpose of this project is to produce a 7500T approved version of the VS Small Cable Concentrator. The exact configuration will be defined after completion of baseline testing.
The mechanical package for this product will be based on the commercial VS Small Cable Concentrator cabinet with the modifications required to meet 7500T specifications.

ANNOUNCEMENT DATE: TBD

PLANNED FCS: DOMESTIC: TBD INTERNATIONAL: TBD

ACTUAL FCS: DOMESTIC: TBD INTERNATIONAL: TBD

TOTAL SHIPPED: 0

IMPACT TO FCS: TBD

MARKETING FORECAST INFORMATION: No Forecast available at this time.

	Q3 FY86	Q4 FY86	Q1 FY87	Q2 FY87
DOMESTIC				
INTERNATIONAL				
TOTAL				

MAINTENANCE:
This product will be maintained by Customer Engineers that have been trained in the low end VS product line and critical features of this secure system.

SPECIAL TOOLS AND TEST EQUIPMENT:
No special tools or test equipment will be required to service this product in the field. The standard CE tool kit will be used.

TRAINING:
TBD

LOGISTICS:
TBD

DOCUMENTATION:
Customer Engineering Maintenance Manual will be produced for this product.

EXECUTIVE SUMMARY

PRODUCT NAME: VS-15/65 UISIO-W PRODUCT FAMILY: VS - Low - End

PRODUCT OVERVIEW:

UISIO-W Controller is a modularized, Z80 based 64-port 928 controller for the VS 15/65. It has a Muxbus connection so that electric or fiber optic APAs can be attached for serial devices, it also has the P-Band interface to the Golbal Modem.

ANNOUNCEMENT DATE: July, 1985

PLANNED FCS: Domestic: 7/85 International: 8/85

ACTUAL FCS: Domestic: 9/85 International: 10/85

TOTAL SHIPPED: 0

IMPACTS TO FCS: None

MARKETING FORECAST INFORMATION

	Q1/86	Q2/86	Q3/86	Q4/86	Q1/87
DOMESTIC	70	70	75	---	---
INTERNATIONAL	5	10	15	---	---

MAINTENANCE:

Units to be supported by standard on-site service methods:

MTBC = 8433 HR CALLS PER YEAR = .51 MTTR 1 HR DIAG. RUN TIME = .5 HR
Hrs/Day = 24 HR Installs = TBD
Days/Wk = 7 Failures = TBD
PM's = 0

SPECIAL TOOLS AND TEST EQUIPMENT:

40 db Loop Back Test Connector

TRAINING:

None required, VS trained CE will install and maintain option.

LOGISTICS:

Unique spares "push" distributed to the field.

DOCUMENTATION:

Publication Update Bulletin (PUB) distributed to the field.

EXECUTIVE SUMMARY

PRODUCT NAME: MEMORY EXPANSION for VS-85/100 PRODUCT FAMILY: VS - High - End

PRODUCT OVERVIEW:

Memory expansion of the VS-85/100 is achieved by installing 4MB memory boards in place of the existing 1 MB memory bds. This enhancement will increase memory of the VS-85 from 4MB to 8MB and the VS-100 from 8MB to 12MB or from 12MB to 16MB. In addition to the memory boards the VS-100 requires a mother board and cache board upgrade.

ANNOUNCEMENT DATE: May, 1985

PLANNED FCS: Domestic: 9/85 International: 10/85

ACTUAL FCS: Domestic: International:

TOTAL SHIPPED: 0

IMPACTS TO FCS: None

MARKETING FORECAST INFORMATION

	Q1/86	Q2/86	Q3/86	Q4/86	Q1/87
DOMESTIC	TBD	---	---	---	---
INTERNATIONAL	TBD	---	---	---	---

MAINTENANCE:

Units to be supported by standard on-site service methods:

MTBC = 681 HR CALLS PER YEAR 12.8 MTTR 1 HR DIAG. RUN TIME = 1 HR
Hrs/Day = 24 HR Installs = TBD
Days/Wk = 7 Failures = TBD
PM's = 0

SPECIAL TOOLS AND TEST EQUIPMENT:

None required.

TRAINING:

Added to the on-line VS training course.

LOGISTICS:

Unique spares "push" distributed to the field.

DOCUMENTATION:

Publication Update Bulletin (PUB) distributed to the field.

EXECUTIVE SUMMARY

PRODUCT NAME: VS CDC VM

PRODUCT FAMILY: VS - High - End

PRODUCT OVERVIEW:

The CDC Virtual Machine (VM) operating system allows a physical VS computer system to be subdivided into a number of virtual computer systems, each using a subset of the physical system resources. CDC VM is supported on CP4 VS systems. New or existing VS 85/90/100 systems can be upgraded to run CDC VM.

ANNOUNCEMENT DATE: March, 1985

PLANNED FCS: Domestic: 1/85 International: N/A

ACTUAL FCS: Domestic: 1/85 International: N/A

TOTAL SHIPPED: 3

IMPACTS TO FCS: None

MARKETING FORECAST INFORMATION

	Q4/85	Q1/86	Q2/86	Q3/86	Q4/86
DOMESTIC	5	5	5	10	---
INTERNATIONAL	N/A	N/A	N/A	N/A	N/A

MAINTENANCE:

Units to be supported by standard on-site service methods:

MTBC = 3124 HR CALLS PER YEAR 3 MTTR 2 HR DIAG. RUN TIME = 1hr
Hrs/Day = 24 HR Installs = 3
Days/Wk = 7 Failures = 0
PM's = 0

SPECIAL TOOLS AND TEST EQUIPMENT:

None required

TRAINING:

None required, VS trained CE will install and maintain option.

LOGISTICS:

Unique spares "push" distributed to the field.

DOCUMENTATION:

Publication Update Bulletin (PUB) distributed to the field.

EXECUTIVE SUMMARY

PRODUCT NAME: VS-85/90/100 32 Port Serial Cont PRODUCT FAMILY: VS - High - End

PRODUCT OVERVIEW:

32 Port Serial Controller is a modularized, Z80 based 32-port 928 controller for the VS 85/90/100. It has a Muxbus connection so that electric or fiber optic APAs can be attached.

ANNOUNCEMENT DATE: April, 1985

PLANNED FCS: Domestic: 8/85 International: 8/85

ACTUAL FCS: Domestic: 9/85 International: 10/85

TOTAL SHIPPED: 0

IMPACTS TO FCS: None

MARKETING FORECAST INFORMATION

	Q4/85	Q1/86	Q2/86	Q3/86	Q4/86
DOMESTIC	0	13	13	24	---
INTERNATIONAL	0	2	2	6	---

MAINTENANCE:

Units to be supported by standard on-site service methods:

MTBC = 27739 HR CALLS PER YEAR 0.31 MTTR 1 HR DIAG. RUN TIME = N/A
Hrs/Day = 24 HR Installs = 0
Days/Wk = 7 Failures = 0
PM's = 0

SPECIAL TOOLS AND TEST EQUIPMENT:

None required.

TRAINING:

None required, VS trained CE will install and maintain option.

LOGISTICS:

Unique spares "push" distributed to the field.

DOCUMENTATION:

Publication Update Bulletin (PUB) distributed to the field.

EXECUTIVE SUMMARY

PRODUCT NAME: VS-100 ASYNC CONTROLLER PRODUCT FAMILY: VS - High - End

PRODUCT OVERVIEW:

An 8086 based async controller for the VS-85/90/100 family; it has eight RS-232C I/O channels with programmable baud rate (1200-19.2 KB) and protocol for each channel. Support for up to eight async devices with RS-232C interface such as the 2110 workstation.

ANNOUNCEMENT DATE: August, 1984

PLANNED FCS: Domestic: 6/85 International: 6/85

ACTUAL FCS: Domestic: 9/85 International: 10/85

TOTAL SHIPPED: 0

IMPACTS TO FCS: None

MARKETING FORECAST INFORMATION

	Q1/86	Q2/86	Q3/86	Q4/86	Q1/87
DOMESTIC	40	105	150	---	---
INTERNATIONAL	10	25	35	---	---

MAINTENANCE:

Units to be supported by standard on-site service methods:

MTBC = 5567 HR CALLS PER YEAR 1.57 MTTR 1 HR DIAG. RUN TIME = N/A
Hrs/Day = 24 HR Installs = 5
Days/Wk = 7 Failures = 0
PM's = 0

SPECIAL TOOLS AND TEST EQUIPMENT:

None Required

TRAINING:

None required, VS trained CE with PUB will be able to install and maintain option.

LOGISTICS:

Unique spares "push" distributed to the field.

DOCUMENTATION:

Publication Update Bulletin (PUB) distributed to the field.

EXECUTIVE SUMMARY

PRODUCT NAME: VS-15/65 ASYNC CONTROLLER PRODUCT FAMILY: VS - Low - End

PRODUCT OVERVIEW:

An 8086 based async controller for the VS-15/25/45 family; it has eight RS-232C I/O channels with programmable baud rate (1200-19.2 KB) and protocol for each channel. Support for up to eight async devices with RS-232C interface such as the 2110 workstation.

ANNOUNCEMENT DATE: August, 1984

PLANNED FCS: Domestic: 6/85 International: 7/85

ACTUAL FCS: Domestic: 6/20/85 International: 9/85

TOTAL SHIPPED: 6

IMPACTS TO FCS: None

MARKETING FORECAST INFORMATION

	Q4/85	Q1/86	Q2/86	Q3/86	Q4/86
DOMESTIC	50	230	200	240	---
INTERNATIONAL	15	60	50	60	---

MAINTENANCE:

Units to be supported by standard on-site service methods:

MTBC = 9549 HR CALLS PER YEAR 0.91 MTTR 1 HR DIAG. RUN TIME = 0.5
Hrs/Day = 24 HR Installs = 6
Days/Wk = 7 Failures = 0
PM's = 0

SPECIAL TOOLS AND TEST EQUIPMENT:

RS-232 Loop Back Plug, 421-0025

TRAINING:

None required, VS trained CE with PUB will be able to install and maintain option.

LOGISTICS:

Unique spares "push" distributed to the field.

DOCUMENTATION:

Publication Update Bulletin (PUB) distributed to the field.

EXECUTIVE SUMMARY

PRODUCT NAME: 4245 TERMINAL PRODUCT FAMILY: VS WORKSTATIONS

PRODUCT OVERVIEW:

The 4245 Terminal is a three piece local Serial Graphics Workstation. The configuration is a detachable Low Profile Universal Keyboard, a Color Monitor, and an Electronics Box. The 4245 Terminal is primarily designed as a Low End Graphics Terminal for Data Processing and WP applications on a VS or OIS System.

ANNOUNCEMENT DATE: July, 1984

PLANNED FCS: Domestic: 1/85 International: 1/85

ACTUAL FCS: Domestic: 6/85 International: 7/84

TOTAL SHIPPED: 2,500 (Australia) 100 (Domestic) 120 (International)

IMPACTS TO FCS:

MARKETING FORECAST INFORMATION

	Q1/86	Q2/86	Q3/86	Q4/86	Q1/87
DOMESTIC	100	100	1000	1,000	1,500
INTERNATIONAL	160	160	500	500	600

MAINTENANCE:

The 4245 Terminal will be supported by VS trained Customer Engineer's on site.

MTBC = 1603 CALLS PER YEAR = 2.18 MTTR = 30 min. DIAGNOSTIC RUN TIME =7 SEC
Hrs/Day = 8 Installs = 1
Days/Wk = 5 Failures = 1.18
PM's = 0

BIT Diagnostics covers the CPU, Keyboard and Monitor with 95% error detection to the FRU's.

SPECIAL TOOLS AND TEST EQUIPMENT: None Required

TRAINING: 1) Initial Customer Engineer's training for the 4245 will be done at the Branch level using Technical manuals. On-line training will be part of the Workstation and Printer course.
2) Customer Engineer's should have experience on similar Workstations i.e., 2246C and S Workstation.

LOGISTICS:

The 4245 Workstations will be supported by Customer Engineering Logistics in the customary manner. FRU's will be stocked at Branch level.

DOCUMENTATION: Standard Manuals will be distributed to the field.

EXECUTIVE SUMMARY

PRODUCT NAME: 8000 SERIES W/S PRODUCT FAMILY: VS

PRODUCT OVERVIEW:
The 8000 W/S is an intelligent, high resolution (1280x1024) monochrome/color graphics Engineering Workstation that will be capable of executing CAD/CAE, data/WP in conjunction with Wang VS host processors.
Plans are to start Alpha testing in June, with Beta sites starting soon after at GM and FORD.

ANNOUNCEMENT DATE: Nov, 1985

PLANNED FCS: Domestic: Q2/86 International: Q2/86

ACTUAL FCS: Domestic: International:

TOTAL SHIPPED: 0

IMPACTS TO FCS:

MARKETING FORECAST INFORMATION

	Q2/86	Q3/86	Q4/86	Q1/87	Q2/87
DOMESTIC	50	200	200	200	200
INTERNATIONAL	---	---	---	---	---

MAINTENANCE:

Service for the 8000 workstation will be provided by Wang trained CE's on site.

MTBC
Hrs/Day = 8
Days/Wk = 5

CALLS PER YEAR
Installs = 1
Failures = 2.7
PM's = 0

MTTR 2.HRS DIAGNOSTIC RUN TIME 10 SEC

SPECIAL TOOLS AND TEST EQUIPMENT: NONE

TRAINING: (1) Initial Customer Engineer's training for the 8000 will be at Branch Level, using technical manuals.

(2) Customer Engineer's should have VS W/S experience.

LOGISTICS:

Logistics for the 8000 Workstation will be handled like that for the other VS Equipment.

DOCUMENTATION:

Technical Documentation will provide a New Product Bulletin for the 8000 Workstation.

EXECUTIVE SUMMARY

PRODUCT NAME: PHASE II COLOR MONITOR PRODUCT FAMILY: VS/PC

PRODUCT OVERVIEW:

The phase II color monitor is a 12 inch diagonal (11.5 V) analog RGB multiple scan rate, OEM color monitor. This monitor is a direct electrical replacement for the phase 1A monitor in that it operates from either the Professional Computer 9322 card or the 4245 color workstation.

ANNOUNCEMENT DATE: August, 1985

PLANNED FCS: Domestic: Q1/86 International: Q1/86

ACTUAL FCS: Domestic: International:

TOTAL SHIPPED: 0

IMPACTS TO FCS: NONE

MARKETING FORECAST INFORMATION

	Q1/86	Q2/86	Q3/86	Q4/86	Q1/87
DOMESTIC	100	100	100	100	100
INTERNATIONAL	100	100	100	100	100

MAINTENANCE:

Customer installable consistent with the existing PC service methods.

MTBC
Hrs/Day = 8
Days/Wk = 5

CALLS PER YEAR
Installs = 1
Failures =.9
PM's = 0

MTTR=30 MIN DIAGNOSTIC RUN TIME N/A

SPECIAL TOOLS AND TEST EQUIPMENT: None Required

TRAINING: None Required

LOGISTICS:

Component sparing at Branch level in sufficient quantities to satisfy the installed base.

DOCUMENTATION:

A PUB will be published, for use by CE's to support the phase II monitor

EXECUTIVE SUMMARY

PRODUCT NAME: 2110 WORKSTATION (Shipping) PRODUCT FAMILY: VS

PRODUCT OVERVIEW:

The 2110 Data Processing Workstation is a CRT Display Terminal, capable of communication with a host VS Controller via an enhanced RS-232-C type port, utilizing a simple Async Protocol. The screen shall be 12" diagonal (minimum), and character-based with 80 characters in 25 rows (25th row for message line use). Screen attributes shall be consistent with minimum required to operate with Wang equipment and software.

ANNOUNCEMENT DATE: MARCH, 1985

PLANNED FCS: Domestic: Q4/85 International: Q4/85

ACTUAL FCS: Domestic: Q4/85 International: Q1/86

TOTAL SHIPPED: 100

IMPACTS TO FCS: NONE

MARKETING FORECAST INFORMATION

	Q4/85	Q1/86	Q2/86	Q3/86	Q4/86
DOMESTIC	100	2000	1,000	2,500	4,000
INTERNATIONAL	100	500	500	500	500

MAINTENANCE:

The 2110 Terminal will be supported by VS trained Customer Engineer's on-site.

MTBC
Hrs/Day = 8
Days/Wk = 5

CALLS PER YEAR
Installs = 1
Failures = .6
PM's = N/A

MTTR=20 MIN DIAGNOSTIC RUN TIME= 8 SEC

SPECIAL TOOLS AND TEST EQUIPMENT: NONE

TRAINING:

(1) Initial Customer Engineer's training for the 2110 Terminal will be at Branch level using Technical Manuals.

(2) Customer Engineer's should have experience on similar workstations ie., 4205, 4220 Terminals.

LOGISTICS:

The 2110 Terminal will be supported by Customer Engineering Logistics in the customary manner. Whole units will be stocked at Branch level.

DOCUMENTATION: Standard Manuals was distributed to the field.

EXECUTIVE SUMMARY

PRODUCT NAME: 2110A W/S PRODUCT FAMILY: VS

PRODUCT OVERVIEW:

The 2110A is a replacement for the 2110. The primary driving force behind the 2110A is the remotely 2110's lack of a printer port. The 2110A will use the 720 keyboard for the direct keyboard generation of the complete ASCII character set.

ANNOUNCEMENT DATE: January 86

PLANNED FCS: Domestic:Q3/86 International:Q3/86

ACTUAL FCS Domestic: International:

TOTAL SHIPPED:0

IMPACTS TO FCS:

MARKETING FORECAST:

	Q3/86	Q4/86	Q1/87	Q2/87	Q3/87
DOMESTIC					
INTERNATIONAL					

MAINTENANCE: Service for the 2110A W/S will be provided on site by a Wang Customer Engineer.

MTBC CALL PER YEAR MTTR=1.HR DIAGNOSTIC RUN TIME=7. SEC
HRS/DAY= 8 Installs= 1
DAYS/WK= 5 Failures= TBD
PM's = 0

SPECIAL TOOLS AND TEST EQUIPMENT: LOOPBACK CONNECTOR

TRAINING:

(1) Entry level Customer Engineer's with W/S experience
(2) Training will be at Branch level using PUB's
(3) No on-line training

LOGISTICS:

TBD

DOCUMENTATION:

Technical Documentation will provide a PUB before FCS.

EXECUTIVE SUMMARY

PRODUCT NAME: 2130 WORKSTATION PRODUCT FAMILY: VS/OA

PRODUCT OVERVIEW:

The 2130 workstation is a new reduced cost version of the Z80 workstation (4230), intended for use on both the VS and OA systems. It is designed to maintain all the present characteristics of the 4230 workstation.

ANNOUNCEMENT DATE: January, 1986

PLANNED FCS: Domestic: Q3/86 International: Q3/86

ACTUAL FCS: Domestic: International:

TOTAL SHIPPED:0

IMPACTS TO FCS:

MARKETING FORECAST:

	Q3/86	Q4/86	Q1/87	Q2/87
DOMESTIC	6470	10094	10050	10400
INTERNATIONAL	640	1094	2000	2500

MAINTENANCE:

The 2130 workstation will be supported by Wang trained CE's on site.

MTBC = CALLS PER YR = MTTR = 30 MIN DIAGNOSTICS RUN TIME = 7 SEC
HRS/DAY=8 Installs = 1
DAYS/WK=5 Failures =.59
PM's = 0

SPECIAL TOOLS AND TEST EQUIPMENT: NONE REQUIRED

TRAINING:
(1) Initial CE training will be at the branch using Technical manuals
(2) Customer Engineer's should have experience with the 4200 series workstations.

LOGISTICS:

Logistics will ensure that spare parts are available at each branch to support this product.

DOCUMENTATION:

A standard maintenance manual will be distributed to the field before FCS.

PRODUCT NAME: VS-5 PRODUCT FAMILY: VS

PRODUCT OVERVIEW

The VS-5 is a repackaged, cost reduced version of the VS-15. The VS-5 will be a six slot system with two standard boards. The balance of three slots being used for options, and one slot reserved for upgrade to VS6. The two standard boards are a CPU/Memory board and a Bus Processor/Winchester Controller/SIO board. Both the VS 5 and the VS-6 will use the same mechanical package; a compact floor standing box. VS-5 will use all option bards designed for VS-15 and VS-65.

ANNOUNCEMENT DATE: TBD

PLANNED FCS: Domestic: 02/86 International:

ACTUAL FCS: Domestic: International:

TOTAL SHIPPED: Zero (0)

IMPACTS TO FCS:

- o This computer is customer installable and will be tested extensively prior to FCS.

MANUFACTURING FORECAST INFORMATION:

	Q3/86	Q4/86	Q1/87	Q2/87
DOMESTIC/ INTERNATIONAL	50	360 ---	960 ---	1200 ---

Preliminary forecast August 16, 1985

MAINTENANCE:

The maintenance strategy will be the computer installed by the customer on selected system configurations. A telephone HOT-LINE will be available for domestic and international customers to assist them with the installation when necessary. This computer will not be maintained by the customer.

Remote Maintenance using RSAF or ACCESS will be the first level of repair where possible. On site local diagnostics will be the next level of repair, with the appropriate spare PCB on site at the initial service call.

MTBC = HR Calls per year = MTTR = Diag. Run Time =
Hrs/Day = Installs =
Days/Wk = Failures =
PM's =

SPECIAL TOOLS AND TEST EQUIPMENT: NONE

TRAINING:

Schedule	- Beta training	November/December 1985.
	- Initial training	January/February 1986.
	- On-line	March 1986

LOGISTICS:

Preliminary fail data information has been supplied to Logistics.

DOCUMENTATION:

A early revision maintenance manual is being developed for Alpha/Beta training and will be available mid November 1985.

The standard version of the Maintenance Manual will be distributed on hard copy and micro-fiche. This manual will be available mid January 1985. The VS5/6 will be combined into one Maintenance Manual.

PRODUCT NAME: RSAF PRODUCT FAMILY: VS

PRODUCT OVERVIEW

The Remote System Administration Facility (RSAF) for the VS-15/65 allows the satellite VS system to be controlled remotely by a Remote System Administrator from any VS workstation (except WS 0) or any properly equipped VS system. This feature will be offered as an option on VS-15/65 computers and will not have any cost impact for the system which does not use RSAF.

The RSAF provides the following functions to the Remote System Administrator through asynchronous telecommunication software:

1. Remote Power ON, Power Off.
2. Remote IPL, Enter Control Mode.
3. Workstation 0 and Operator Privileges.
4. Operator Screen Monitoring
5. Viewing of history log by remote system administrator.

These services will be accomplished via the Integrated System Administration Console (ISAC), a WPC-based workstation attached to the satellite VS-15/65, which replaces a regular VS-15/65 workstation 0.

ANNOUNCEMENT DATE: February 15, 1985

PLANNED FCS: Domestic: 04/85 International:

ACTUAL FCS: Domestic: International:

TOTAL SHIPPED: Zero (0)

IMPACTS TO FCS:

QA is now testing RSAF.

MANUFACTURING FORECAST INFORMATION: *

	Q4/85	Q1/86	Q2/86	Q3/86	Q4/86	Q1/87
DOMESTIC/	---	200	335	---	---	---
INTERNATIONAL	---	---	---	---	---	---

* RIPL-PC #289-0411 PCB.

MAINTENANCE:

The maintenance strategy will be remote diagnostics as the first line of repair where possible. On site local diagnostics will be the next line of repair for RSAF computer systems.

MTBC = 1094 Calls per year = 2.13 MTTR = 2.0 Diag. Run Time =45 min.

Hrs/Day =	9	Installs =	0
Days/Wk =	5	Failures =	2.10
		PM's =	0

SPECIAL TOOLS AND TEST EQUIPMENT: NONE

TRAINING:

Schedule :		
	Beta training	February/March 1985
	*Initial training	February/March 1985
	On-line	April 1985

*RSAF has been incorporated into the VS 65 training classes.

LOGISTICS:

Fail data information has been supplied to Logistics.

DOCUMENTATION:

The Maintenance manual on micro-fiche has been distributed to the Worldwide Field Organization. The hard copy version of this manual is back from the printers and is available upon request.

The RSAF training guide (P/N 741-9039) is back from the printers and is available to CSO upon request.

PRODUCT NAME: VS-6 PRODUCT FAMILY: VS

PRODUCT OVERVIEW

The VS-6 is a repackaged, cost reduced version of the VS-65. The VS-6 will be a six slot system with three standard boards. The balance of three slots being used for options. The three standard boards are a CPU, Cache/Memory (Same as used in VS-65) and a new Bus Processor/Winchester Controller/SIO board. Both the VS-6 and the VS-5 will use the same mechanical package; a compact floor standing box. VS-6 will use all option boards designed for VS-65.

ANNOUNCEMENT DATE: TBD

PLANNED FCS: Domestic: 02/86 International:

ACTUAL FCS: Domestic: International:

TOTAL SHIPPED: Zero (0)

IMPACTS TO FCS:

- o This computer is customer installable and will be tested extensively prior to FCS.

MANUFACTURING FORECAST INFORMATION:

	Q3/86	Q4/86	Q1/87	Q2/87
DOMESTIC/ INTERNATIONAL	50	240 ---	540 ---	800 ---

Preliminary forecast August 16, 1985

MAINTENANCE:

The maintenance strategy will be the computer installed by the customer on selected system configurations. A telephone HOT-LINE will be available for domestic and international customers to assist them with the installation when necessary. This computer will not be maintained by the customer.

Remote Maintenance using RSAF or ACCESS will be the first level of repair where possible. On site local diagnostics will be the next level of repair, with the appropriate spare PCB on site at the initial service call.

MTBC = HR Calls per year = MTTR = Diag. Run Time =
Hrs/Day = Installs =
Days/Wk = Failures =
PM's =

SPECIAL TOOLS AND TEST EQUIPMENT: NONE

TRAINING:

Schedule	- Beta training	November/December 1985.
	- Initial training	January/February 1986.
	- On-line	March 1986

LOGISTICS:

Preliminary fail data information has been supplied to Logistics.

DOCUMENTATION:

A early revision maintenance manual is being developed for Alpha/Beta training and will be available mid November 1985.

The standard version of the Maintenance Manual will be distributed on hard copy and micro-fiche. This manual will be available mid January 1985. The VS5/6 will be combined into one Maintenance Manual.

EXECUTIVE SUMMARY

PRODUCT NAME: VS-300 PRODUCT FAMILY: VS High-End

PRODUCT OVERVIEW:

The VS-300 is a high-end 32-bit Computing System capable of three (3X) times the performance of the VS-100. The VS-300 is an all new design; cabinet, six (6) CPU, one (1) main memory, and six (6) I/O control boards with Remote Diagnostic and Optional Battery Backup capability. Also, a new 454 MB Disk Drive will be supported on this system.

ANNOUNCEMENT DATE: March 1984

PLANNED FCS: Domestic: 04/85 International: 06/85

ACTUAL FCS: Domestic: 05/85 International: 06/85

TOTAL SHIPPED: 63

IMPACTS TO FCS: None

MARKETING FORECAST INFORMATION

	Q3/85	Q4/85	Q1/86	Q2/86	Q3/86
DOMESTIC	3	35	60	85	---
INTERNATIONAL	0	15	25	40	---

MAINTENANCE:

Units to be supported by Remote Diagnostics and standard on-site service methods. No scheduled PM's will be required, but are to be perform during an on site call at approximately six month intervals.

MTBC = 1954 CALLS PER YEAR = 4.5 MTTR = 1.0 DIAGNOSTIC RUN TIME =0.3
Hrs/Day = 24 Installs = 1
Days/Wk = 7 Failures = 3.5
PMs = 0

SPECIAL TOOLS AND TEST EQUIPMENT:

Test Plug - Low voltage battery cut-off # 220-2341
Test Plug - Power supply test # 220-2342

TRAINING: Beta Site plus six (6) initial classes, and on-line training will be provided. The new course will be three (3) weeks in duration, and will include VS-300 CPU, 500 MB FHD, PC and Remote Diagnostic Troubleshooting, Installation and System Repair using system concepts.

Prerequisites: VS-100 trained and one year VS-100 experience.

LOGISTICS: Spares "push" distributed to the field.

DOCUMENTATION: A Special Product Manual has been distributed to all students. A Product Maintenance Manual will be available in September. A Standard Manual will be available within six months after FCS.

GETTING UP VDISK

REQUIREMENTS: 2200 REL 2.1 O/S OR HIGHER
28K MEM PARTITION
35K PARTITION FOR ADDING FILE ACCESS SUBROUTINES
DE OR DW TYPE W/S

VS VER 7.10.10
SER PORT TO CONNECT TO THE 2258 BOARD CONFIGURED AS 2258 DEV
C2258MWS UCODE DOWNLOADED BY VS
GEN AS 2258 CLUSTER DEVICES, 4 DEVICES 1 PORT ?
ALLOW FOR AT LEAST 33 OPEN FILES + # OF FILES FOR DMS
(SEE PG 2-6, USERS GUIDE)
COPY 2 DISKETTE FILES FOR TERM/V DISK 2.00.00 &
ACCESS SUB DISK TO VS SYSTEM DISK, LIB CSYSTEMC

TO INITIALLY SET UP AFTER H/W & S/W INSTALLED
FROM 2258 MENU
ATTACH DMS/VDISK
COMMUNICATIONS ADDR 07C RET (3-7 ON, 8 OFF)
VS LOGON SCREEN LOGON
PF'1 RUN PROGRAM 2200SRV
KEY EDIT/CANCEL FOR ATTACH DMS/VDISK SCREEN

COMM ADDR 07C (FROM SWITCHES)
VDISK ADDR D30 (")
VDISK CONFIG FILE TEST OR CONFIG KEY

* KEY EXEC/RUN TO ATTACH 2200 TO VS
OR
SF'9 TO REPLACE THE VDISK CONFIG

UPDATES THE ATTACH DMS/VDISK INDICATING IN LOWER LEFT CORNER STATUS
SELECT SUSPEND EMULATION EXEC/RUN

GOES BACK TO 2258 MENU
PICK VIEW DMS/VDISK STATUS (TO VERIFY VDISK ACTIVE)

To Create VDisk

CREATE VDISK FROM MENU

comm ADDR 07C MUST BE ATTACHED FIRST TO CREATE

ENTER VOL LIB FILE PLATTER SIZE

Ex 2200 D31 65024 KEY EXEC WHEN ALL ENTRIES DONE

** IF ENTRY ALREADY EXIST WILL NOT OVERWRITE SO CAN NOT CHANGE SIZE.

2258 S/W Bug

When Editing VDISK created new configuration file and saved as TEST. Program indicated "TEST" successfully created, but would get D82 if tried to load, 'program not found'.

Found a program called 'TEST' already existed. Renamed 'TEST' & was ∴ able to successively save and then load.

$$T
2200/VS TELECOMMUNICATION OPTION - CONFIG. GUIDELINES/DEPENDENCIES
$$T
12/17/92

SYSTEMS SUPPORTED
VS
CS-D, CS-N

HARDWARE REQUIRED
An unused serial port on the VS for a 2258MWS (Multi-workstation) device as defined using the VS GENEDIT program.
28KB of Control Memory on the 2200 CPU.
The 2200/VS connection software can be loaded onto any of the VS supported disk drives and will occupy 400KB of disk space.

Move to H/W

SOFTWARE REQUIRED
Release 2.7 or greater of the 2200 Multi-user Operating System
Operating System releases below 2.7 will allow VSTE only.
A 28KB partition to run the VDISK utilities and VSTE.
5KB to 7KB additional needed ~~per existing~~ program ~~for~~ file access routines when using DMS.
VS Operating System 7.~~XX~~ ~~series that supports VS/2200 SRV (server that maps 2200 disk requests into VS DMS requests).~~ Operating System releases below 7.XX will allow VSTE only.
@ 2258MWS CONTROLLER MICROCODE DOWNLOADED BY THE VS TO THE 2258 CONTROLLER, &
2200SRV TRANSPORT SOFTWARE (VS CNTRL/MCODE, DISK 1 & 2 - 735-7011/9333-A)

OPERATING SPECIFICATIONS
Operating Mode - Asynchronous, polled
Data Format - Serial
Data Rate - 4.27MPS
Transmission Medium - Dual-coaxial baseband cable

2200 VS TERMINAL EMULATION AND VDISK UTIL (TERM/V DISK REV 2 - 731-8061-A, ACCESS SUB DISK REV 2 731-8012A)

$$T

2200/VS TELECOMMUNICATION OPTION - DOCUMENTATION

$$T
12/17/92

LITERATURE

Part Number	Title
714-0228	2200 LCO CSRN
715-0562A	2200/VS LCO Programmer's Reference Guide
715-0564	2200/VS LCO User's Guide
715-0564.01	2200 LCO Update Sheet

DATA SHEETS/MANUALS

Part Number	Title
715-0563	2200/LCO Data Sheet

FOCUS

Title	Date
2200/VS Local Communications Option	08/29/86

$$T

2200/VS TELECOMMUNICATION OPTION - DISCONTINUED PRODUCT SUPPORT

$$T
12/17/92

The following represents a list of select discontinued products that are currently supported. This list is not all inclusive.

- The 2258 option can be used with the VS 5, 5E, 6, 6E, 15, 25, 45, 45XP, 65, 75E, 85, 90, 100, 300, and VS 7000 series.
- The 2258 can be used with the discontinued LVP, MicroVP, MVP, and CS systems.
- The 2258 can be used with the discontinued 2236 and 2336 series workstations.

$$T

2200/VS TELECOMMUNICATION OPTION - ADDITIONAL INFORMATION

$$T
12/17/92

- A function strip is provided to indicate how the 2200 workstation special function keys correspond to those on the VS workstation.

2258

Term Emul

1. Logon VS
   Emulate VS W/S

VDisk

2. Can use VS disk for 2200
   2200 Image Files

3 Files of VS disk that can be shared
DMS

Only Workstation 1 can

ATTACH DMS/VDISK
DETACH DMS/VDISK
CHANGE VDISK CONFIGURATION
DELETE VDISK

To open communication to the VS disk

1. Enter Terminal Emulation on TERM 1
2. Logon VS & Run program 2200SRV

VS Emulation - 2200 Continue = VS HELP
Edit = CANCEL

Cancel - brings u to emulation selection to leave VS

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TECHNICAL SERVICE BULLETIN
SECTION: HardWare Technical

NUMBER: HWT 6234 REPLACES: _____ DATE: 09/30/86 PAGE 1 OF 1

MATRIX ID. 4201 PRODUCT/RELEASE #: 2200/VS Local Communication Option

TITLE: 2200/VS Local Communication Option New Product Announcement

PURPOSE:

Provide information to the field about the new 2200/VS Local Communication Option Model# 2258.

EXPLANATION:

An article, titled "2200/VS Local Communication Option" in the August 29, 1986 issue of FOCUS announced the Modle 2258 Controller.
The purpose of the 2200/VS Local Communication Option is to provide the 2200 User with a migration path into the VS environment. This objective is accomplished by providing a combined software and hardware product that will allow a 2200MVP, LVP or MicroVP System to communicate with and co-exist in a VS environment. The VS/2200 system configuration made possible by this product will provide the 2200 User with the following services:

- VDISK- The ability to create 2200 virtual disks on the VS disk storage system. These VDISK's can be used by the 2200 like any other 2200 Disk.
- VSDMS- VS System and Filing Services (DMS) accessible from the 2200. This service allows the 2200 to store and retrieve data on the VS in native VS format, thus allowing the VS and 2200 to act on these data files.
- VSTE - VS Terminal Emulation on the 2200. This service allows the 2200 user to log on to the VS and execute any VS task that does not require downloading microcode to the workstation.

This product will be offered in three models:
Model 2258-3: 210-8576 Controller with 2200 software on 8" SSSD Diskette.
Model 2258-5: 210-8576 Controller with 2200 software on 8" DSDD Diskette.
Model 2258-9: 210-8576 Controller with 2200 software on 5 1/4" DSDD Diskette.
All three Models will include two VS files on both 8" and 5 1/4" media.

The Customer Engineering Product Maintenance Manual (part # 741-1723) will include operation, installation and maintenance information. Additional information about this product can be found in the 2200/VS ICO User's Guide part # 715-0564 and 2200/VS Programmer's Reference Guide part # 715-0562.
GROUP: VS/2200/PC Hardware Support Group MAIL STOP: 0122

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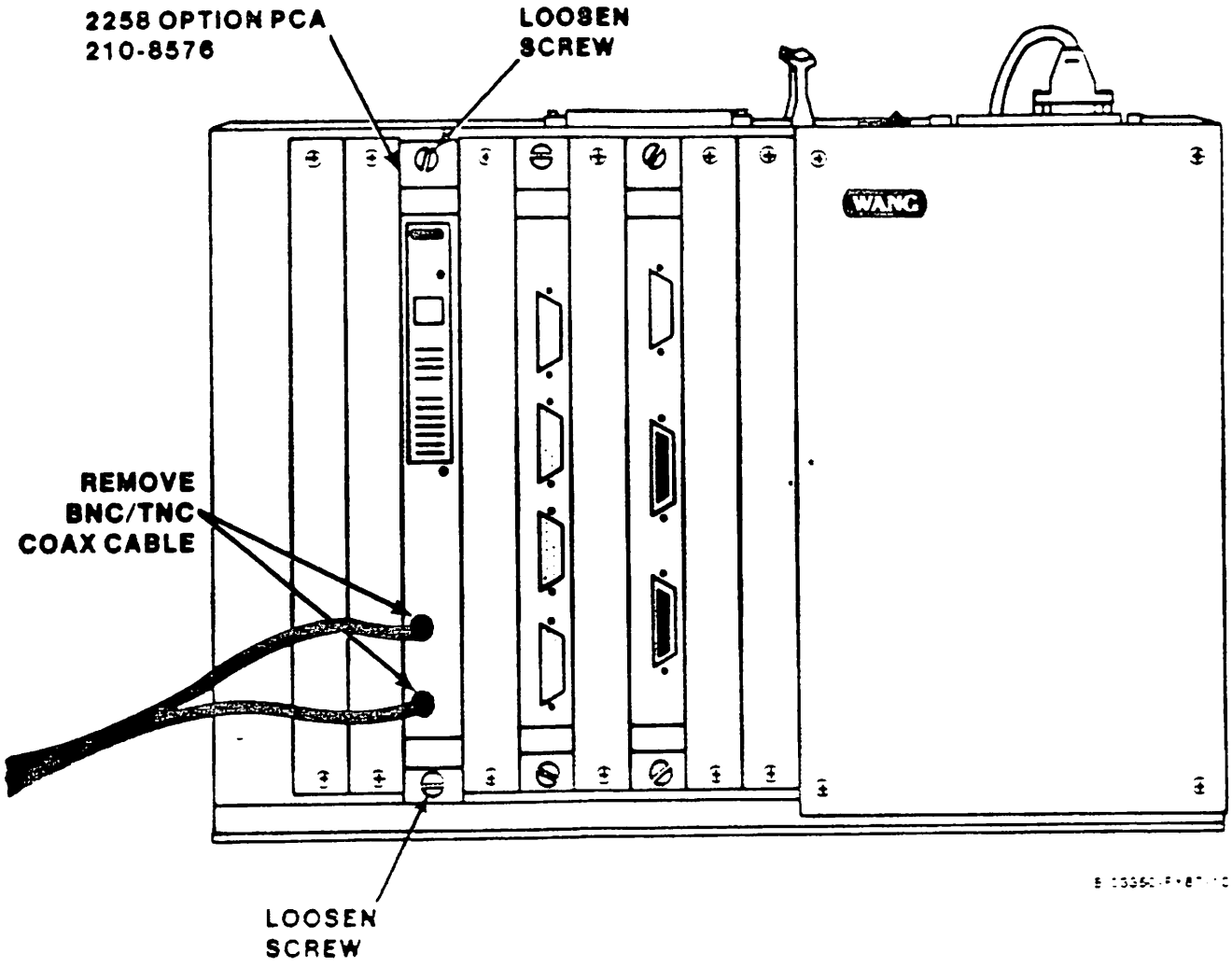
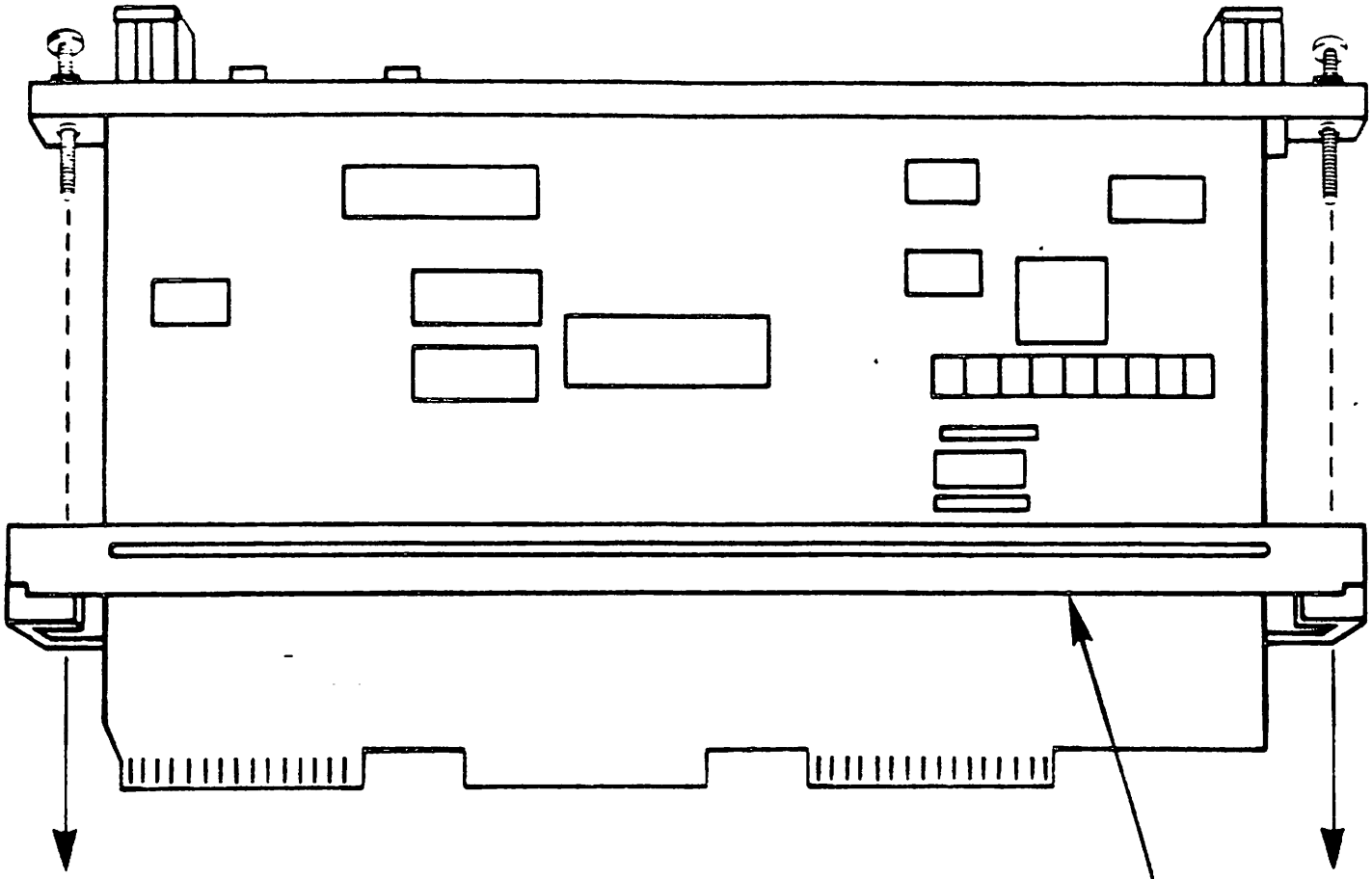
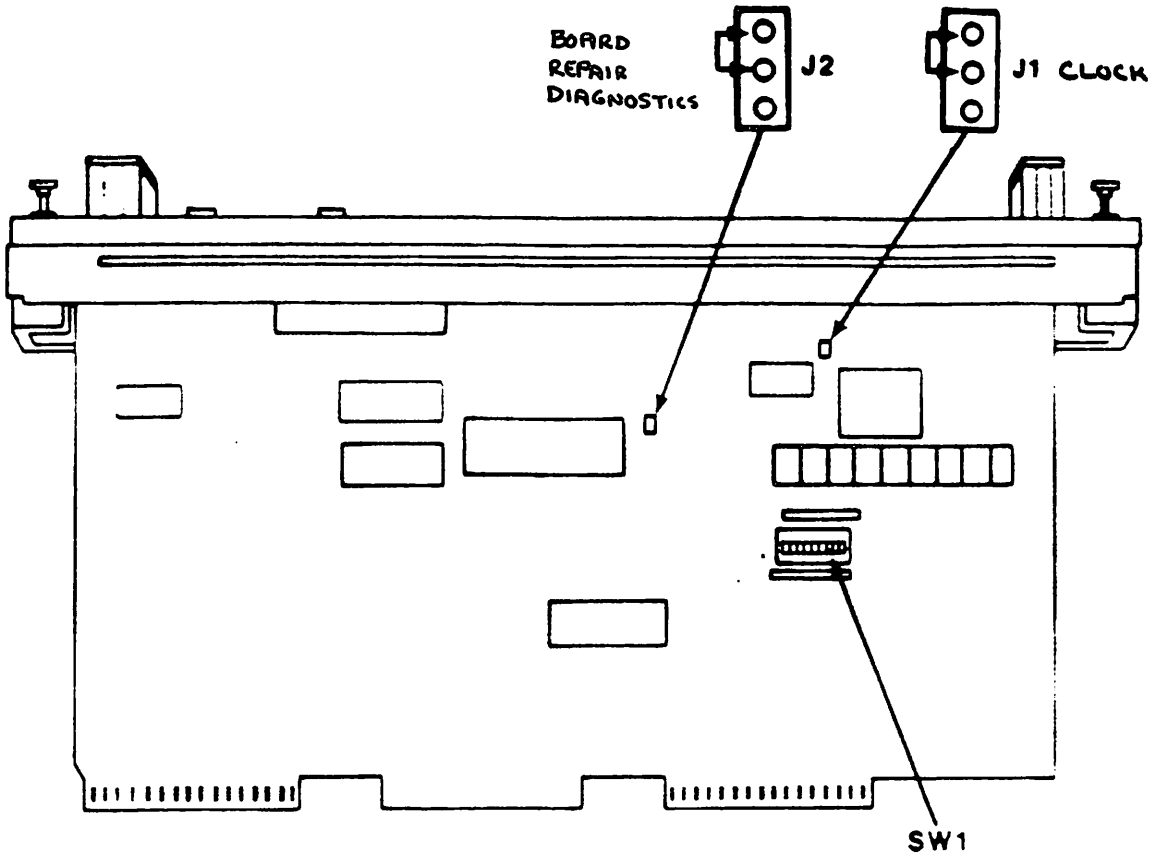
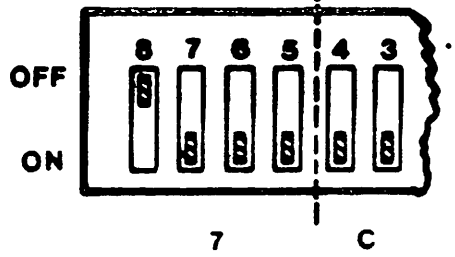
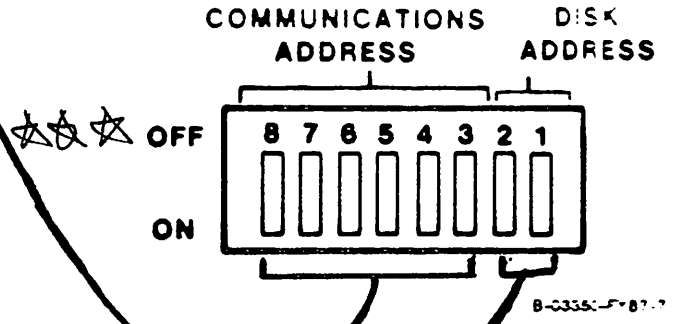

2258 OPTION PCA
210-8576
LOOSEN
SCREW
WANG
REMOVE
BNC/TNC
COAX CABLE
LOOSEN
SCREW


NOTE PLACEMENT AND SLIDE OFF
RF SHIELD SPACER



	HIGH ORDER				LOW ORDER	
BIT WEIGHT:	80	40	20	10	08	04

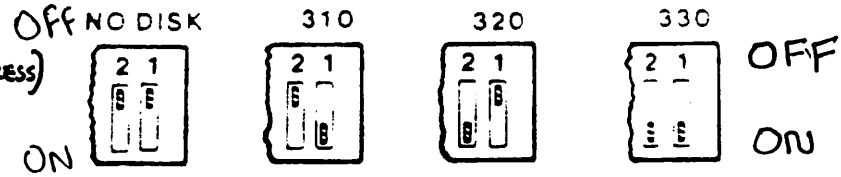




Controller Status Address /07D
Controller Command Address /07E
Controller Data Address /07F

POSSIBILITIES (ANY NON-USED ADDRESS)

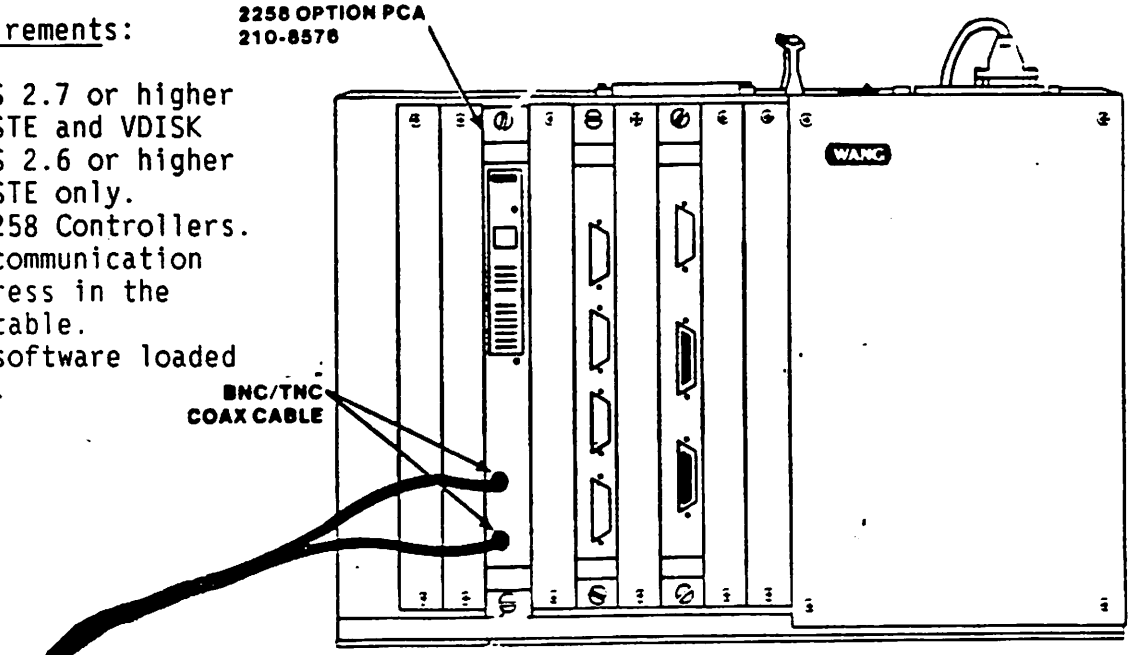
7 0
7 4
7 8
7 C
6 0
6 4
6 8
6 C



= SWITCH POSITION

2200 System Requirements:

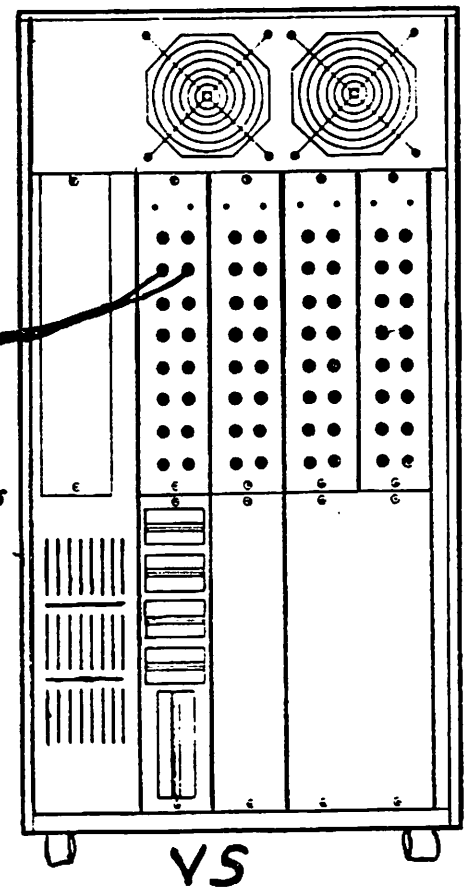
1) Muiti-User OS 2.7 or higher to support VSTE and VDISK
2) Multi-User OS 2.6 or higher to support VSTE only.
3) Up to four 2258 Controllers.
4) 2258 option communication and disk address in the 2200 device table.
5) 2258 Option software loaded on 2200 disk.



VS System Requirements:

1) One Serial Port for each 2258 controller connection.
2) Serial Ports configured as 2258 cluster devices (GENEDIT). } WONT SHOW AS VALID DEV'S BUT WILL BE ACCEPTED
3) VS OS 7.10.10 or higher to support VSTE and VDISK. 6.43 TERMINAL EMULATION ONLY
4) VS OS 6.43 will support VSTE only.
5) 2200SRV and @2258MWS files in @SYSTEM@ on the system Volume.
   NOT PRESENT ON 7.10.10 & PROBABLY WONT BE ON SUBSEQUENT RELEASES
   MUST BE LOADED.

GEN A 2258 4 DEVICES/1 PORT



TECHNICAL SERVICE BULLETIN
SECTION: HardWare Technical

NUMBER: HWT-6321 REPLACES: _____ DATE: 12/12/86 PAGE 1 OF 1

MATRIX ID. 4201 PRODUCT/RELEASE #: 2200/VS Local Communication Option

TITLE: 2200/VS Local Communication Option

PURPOSE:

Provide clarification of information provided in the Customer Engineering Product Maintenance Manual (part # 741-1723) for the 2200/VS Local Communication Option.

EXPLANATION:

On page 39 of the first edition of the 2200/VS Local Communication Option Customer Engineering Product Maintenance Manual there is a statement that indicates 2258 device type support in release 6.43 of the VSOS. That statement is not correct. 2258 device type support was not included in VSOS 6.43. The minimum VSOS release that supports this device is release 7.10.10.

Model 2258 Local Communication Option controller is an oversized board. For this reason, a spacer is used between the controller faceplate and 2200 cabinet I/O slot. The part number for this spacer was not included in the IPB section of the Maintenance Manual. The part numbers for the parts that make up this spacer are:

458-1296 SPACER,FACE PLATE (R.F.)
452-2747 CLIP, SPACER (R.F.)

NOTE: This spacer is included with the Model 2258 Local Communication Option and used with the 210-8576 board. If the 210-8576 board is replaced in the field the spacer should be removed form the old board and installed on the replacement board.

GROUP: VS/2200/OA Hardware New Product Support MAIL STOP: 001220

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W A N G L A B O R A T O R I E S I N C .

PROBLEM TRACKING AND REPORTING
COMPLETE DETAIL REPORT

H E A D E R I N F O

PROBLEM NUMBER M10F227710

PROBLEM NUMBER:	M10F227710	CUST NAME:	
PRIORITY	P2	CUST NUMBER:	
PROBLEM TYPE:	PRE	CUST CONTACT:	
LINK TO PROB NO:		CUST CONT PHONE:	- - -
		CUST ADDRESS 1:	
		CUST ADDRESS 2:	
SYSTEM MODEL NO:		CUST ADDRESS 3:	
GEN SYST MODEL:	2200 MVP CPU	CUST CITY:	
O. S. VERSION:	03 07	CUST ST/PROV:	
HW MODEL NUMBER:		CUST ZIP:	- CUST RDB:
SW MODEL NUMBER:	2258	CUST COUNTRY:	
SW VERSION:	00 20		
		RDB ASSIGNED:	8760
		PERSON ASSIGNED:	BAHIA MICHAEL E
ALL INFO. AVAILABLE:	Y	ORIG NAME:	RILEY J MICHAEL
		ORIG EMPL NO:	00-42654
SERIAL NUMBER:		ORIG PHONE:	- - -
		ORIG RDB:	8760
CALL TRKG DATE:	00/00/00 00:00	DATE ENTER PTR:	11/14/86
L TRKG NO:		RES DEPLOYED:	
STATUS DATE:	03/04/93	DATE TO R&D:	11/14/86
STATUS CODE:	S C 796	WKDAYS IN R&D:	1.00
STATUS ABBREV:	AVAILABLE	TOT WKDAYS OPEN:	302.00
STATUS DESC:	SOFTWARE AVAILABLE		

PROBLEM STATEMENT : DATE: 11/14/86 TIME: 00:43

2258MWS: You can write in a potected mumeric field.

WANG LABORATORIES INC.
PROBLEM TRACKING AND REPORTING
COMPLETE DETAIL REPORT
PROB. RESOLUTION
PROBLEM NUMBER M10F227710

PROBLEM NO: M10F227710
STATUS CODE: S C 796 STATUS ABBR: AVAILABLE DATE ENTERED: 10/30/90

ORIGINAL	MODEL NUMBER	GENERIC MODEL		VERSION
SYSTEM :		2200 MVP CPU	O.S:	03 07
HARDWARE:				
SOFTWARE:	2258	SYSTEM SERVICES	SWR:	00 20

		VERSION
	O.S:	
	SWR:	02 00 00

RESOLUTION TEXT :RILEY J MICHAEL DATE: 10/30/90 TIME: 10:35
Future fix in 2200 2258 version no 02 00 00
Fix is in Rev. 2.00 out in Jan 1991 JMR

PROBLEM NO: M10F227710
STATUS CODE: S C 796 STATUS ABBR: AVAILABLE DATE ENTERED: 03/04/93

ORIGINAL	MODEL NUMBER	GENERIC MODEL		VERSION
SYSTEM :		2200 MVP CPU	O.S:	03 07
HARDWARE:				
SOFTWARE:	2258	SYSTEM SERVICES	SWR:	00 20

		VERSION
	O.S:	
	SWR:	02 00

RESOLUTION TEXT :BAHIA MICHAEL E DATE: 03/04/93 TIME: 09:19
SC796. Problem fixed in rel 2.0 of the 2258 S/W released in 1991 per MR.
Closing call.

P R O B L E M D E T A I L

PROBLEM NUMBER M10F227710

ASSIGNED: ROY EUGENE T DATE: 03/03/93 TIME: 14:07
Moved to clean up maintenance mailbox

ASSIGNED: DATE: 11/13/92 TIME: 14:56
Comment For Summary's Last Lines Of Old Product ProblemHeader
*

ASSIGNED: RILEY J MICHAEL DATE: 06/11/90 TIME: 13:13
I hope to fix all 2258 bugs in July 1990

ASSIGNED: DATE: 03/08/89 TIME: 21:36
THIS STATUS COMMENT RESULTED FROM RE-ALIGNING THE PROBLEM
SUMMARY THAT WAS INCORRECTLY PRODUCED DURING PROBE CONVERSION.
Future fix in 2200 2258 version no 02 00 00

ASSIGNED: RILEY J MICHAEL DATE: 11/14/86 TIME: 05:43
PROBE'S CUSTOMER NAME: HOME OFFICE
PROBE CUSTOMER CONTACT: CUST PHONE EXT:
CUST CITY: PHONE: - -
HOW TO DUPLICATE:
On a VS Files/libraries (SF5); go in to a Vol., The fields that are display
are potected. You should not be able to write in.
DUPLICATE NO:
ORIGINATOR NAME: MICHAEL RILEY
ORIGINATOR RDB: 8469
ORIGINAL PRODUCT: 2200
ORIGINAL COMPONENT: 2258

$$T

2200/VS TELECOMMUNICATION OPTION - DESCRIPTION/STRATEGY

$$T
12/17/92

2258-3/5/9 2200/VS Local Connect Option

The 2200/VS LCO is a data communications hardware and software option that enables select Wang 2200 systems using Release 2.7 or greater of the 2200 Multi-user Operating System to communicate with a Wang VS computer system. Communications between the 2200 system and the VS system occurs at speeds of 4.27 megabits per second over dual coaxial cable facilities. The VS, with an available serial port for the coaxial cable connection, may be located up to 2,000 feet (609.6m) away (25 feet is standard) from the 2200.

The 2258 Communications Controller is an internal microprocessor-based controller mounted in the 2200 chassis. Each controller supports four concurrent sessions between the 2200 and the VS. You can either have four terminal emulation sessions (VSTE) or three VSTE and one disk session (VDISK and/or DMS) per controller. Multiple 2258 Controllers will allow combinations of up to 16 sessions logged on to a single VS, or one 2200 linked to four VSs, or one 2200 with eight sessions logged on to two VSs, etc.

When the 2258 Controller is installed in the 2200 chassis, two addresses are set: a 2200 disk address for VDISK requests and a communications address for workstation emulation and VS filing requests. When the 2200 is powered on, the controller receives microcode from the VS and initializes itself.

A 2200 user with a 2258 LCO option will now be able to perform the following:

Under VDISK, run 2200 application programs on the 2200 that store and retrieve 2200 disk-image files in 256-byte records on the VS's filing system. These files are created by 2200 utilities included with the LCO package.

Using the DMS services of the VS, run 2200 application programs that store and retrieve 2200 data from the VS in native VS files, using subroutines supplied with the LCO package.

Using VSTE, log on to the VS and run VS application programs that do not require the downloading of microcode to a VS workstation. Some examples are DP applications, Wang OFFICE, PACE, and VS Batch Communications.

VDISK provides the following features:

Supports one VS filing services session per 2258 Controller (all 2200 applications have access to the VS disk through this single link). This session can handle both VDISK and DMS.

Supports up to 32 VDISKs for each 2258 Controller.

Supports a VDISK maximum platter size of 65,536 sectors (a 16MB 2200 platter).

Maintains a table containing each open VDISK.

Requires no change to the 2200 BASIC-2 program other than a device address (if different from the device address of the 2258).

Provides from 2200 workstation number one the VDISK utilities to create,edit, view, or delete VDISKs in the configuration file. Any other workstation can view the VDISK status.

Supports the sharing of VDISK files with similarly equipped 2200 systems connected to the VS.

Enables a 2200 user to copy a VDISK file to a 2200 disk.

DMS or the 2200/LCO native VS filing services has the following features:

Supports one VS filing services session per 2258 Controller (all 2200 applications have access to the VS disk through this single link).

Requires the addition of file access subroutines to the BASIC-2 application (provided with the package).

Allows access to any currently defined native VS DMS file type. For example, consecutive, relative, and indexed files are supported.

Supports the sharing of data converted from 2200 to native VS DMS files with other VS applications and systems with similarly equipped 2200 systems connected to a VS.

VS Terminal Emulation (VSTE) has the following features:

Available from any workstation on the 2200.

Supports up to four workstation emulation sessions concurrently per 2258 Controller.

Emulation of a VS 2256C workstation (DP only).

The statement that you can only have one VDISK or DMS disk session per 2258 means you can only log on to the VS for disk tasks once per 2258 Controller. This should be done by a workstation on the 2200 designated as Workstation 1. However, all resident applications have simultaneous access to this link and are able to store and access their files on the VS in the normal 2200 time-slice mode. In addition, some applications can be using VDISK and others DMS, all at the same time.

When ordering the 2258 option, choose the media type based on the diskette drive in both the 2200 system and the VS system:

Model 2258-3 includes the 2258 controller, 2200 software on 8-inch SSSD diskettes, and VS software on both 8-inch and 5 1/4-inch diskettes.

Model 2258-5 includes the 2258 controller, 2200 software on 8-inch DSDD diskettes, and VS software on both 8-inch and 5 1/4-inch diskettes.

Model 2258-9 includes the 2258 controller, 2200 software on 5 1/4-inch DSDD diskettes, and VS software on both 8-inch and 5 1/4-inch diskettes.