M I L P I T A S F A C I L I T Y

S T R U C T U R A L T E S T P R O D U C T S

S E R V I C E T R A I N I N G B U L L E T I N

2511/2514 I N D E X

NUMBER	DESCRIPTION
1	Patch for WINFLP
2	Winchester Disk Format
3	11/23 Configuration
4	Large Screen Monitor
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6	WINFLP Diagnostic
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23	16 Channel Selector Diagnostic
24	LSI 11/73 Onboard Micro-Diagnostics
25	PARK Command & LSI 11/73's

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SERVICE TRAINING BULLETIN

PRODUCT	2511/2514
BULLETIN NUMBER	1
HEADING	PATCH TO WINFLP

I. PROBLEM — Small timing differences in the AED controller will occasionally cause density errors when the floppy portion of WINFLP is initializing.

II. CORRECTION — Using SIPP make the following changes to WINFLP "ONLY" when the density error occur. The error is system dependent.

III. PROCEDURE

```
.R SIPP
*WINFLP
Base? 0
      -

Offset? 72540
        -----

Base            Offset          Old             New?
000000          072540          000177          177777   (*)
                                                ------
000000          072542          005300          ^Z
                                                --

Offset? 2330
        ----

Base            Offset          Old             New?
000000          002330          000106          107      (**)
                                                ---
000000          002332          012706          ^Y       (***)
                                                --

* ^C
  --
```

(*)... Increase time delay loop.
(**).. Change revision from F to G.
(***). Return to RT-11.

S A N T A C L A R A F A C I L I T Y

S E R V I C E T R A I N I N G B U L L E T I N

PRODUCT 2511/2514
BULLETIN NUMBER 2
HEADING WINCHESTER DISK FORMAT

I. PROBLEM

Methods to format the CMI/AED winchester disk and controller. The RT-11 format CANNOT be used.

II. WINFLP METHOD

Using the Utility Function of the diagnostic WINFLP, select #3. This is the preferable method to format the winchester.

III. ODT

From the AED prompt (DEV or AED):

DEV> XI2 (CR) Selects format function.

DEV> XU0 (CR) Formats unit 0.

Are you sure? Y (CR)

DEV> XI2 (CR) Selects format function.

DEV> XU1 (CR) Formats unit 1.

Are you sure? Y (CR)

Formatting takes about 1 minute.

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SERVICE TRAINING BULLETIN

PRODUCT	2511
BULLETIN NUMBER	3
HEADING	11/23 Configuration

I. ABSTRACT

The LSI 11/23 used in the 2514 and 2515 require special jumper configuration and a capacitor change to extend timeout.

II. CONFIGURATION

W1	IN	
W2	OUT	
W3	IN	
W4	OUT	(BEVENT)
W5	OUT	
W6	IN	
W7	OUT	
W8	IN	
W9-W15	IN	
W18	OUT	
E39	Floating point IC installed	
C2	Replace with GR P/N 4383-2020, (Cap, Flm, .0018uf, 50V, 1 Pct)	

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SERVICE TRAINING BULLETIN

PRODUCT	2511/2514
BULLETIN NUMBER	4
HEADING	LARGE SCREEN MONITOR

I. ABSTRACT

The composite video signal levels are different amplitudes on the 2515 and 2511/2514 CRT outputs. When mixing large screen monitors between these products it may be necessary to adjust the horizontal hold R418.

II. COMPONENT PLACEMENT

Attached are two drawings indicating R418 locations.

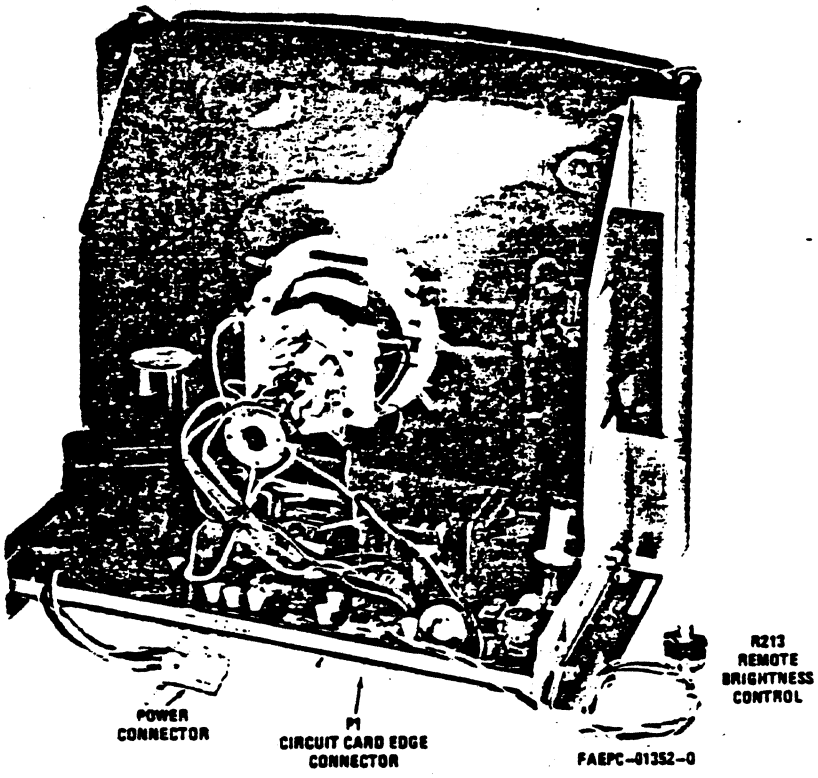

Figure 3. Typical MDS-Series Display Monitor – Rear View

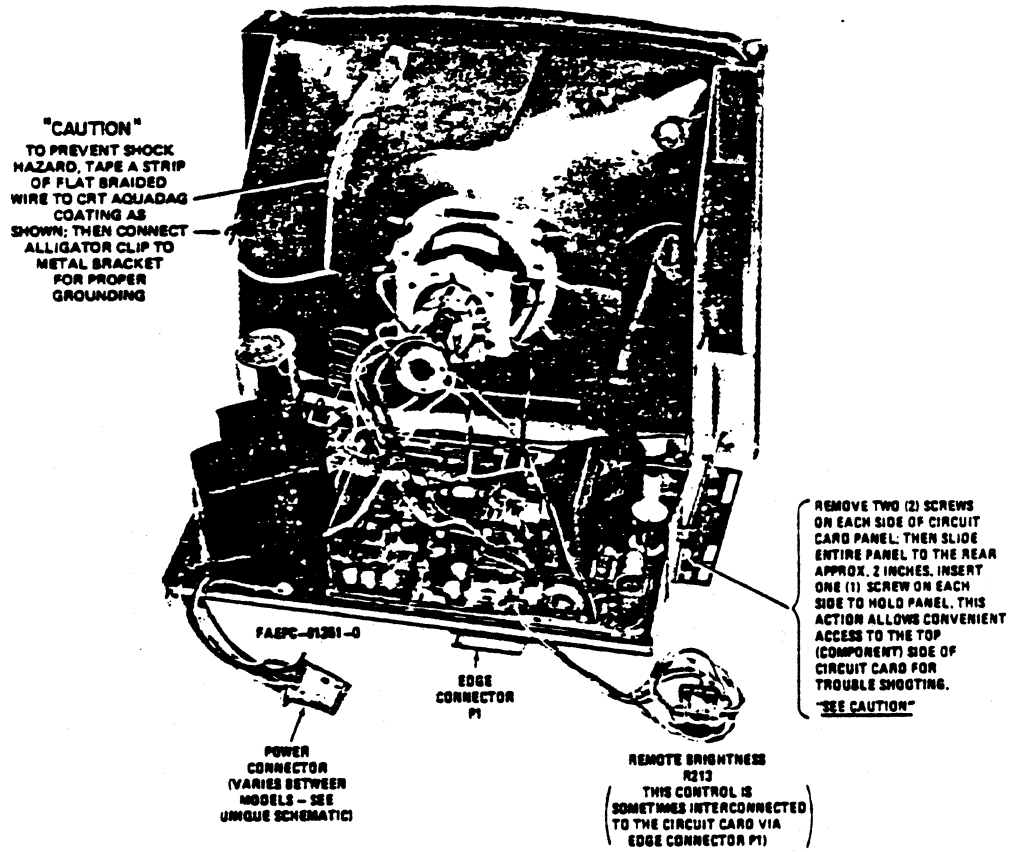

Figure 4. Circuit Card Troubleshooting from Component Side

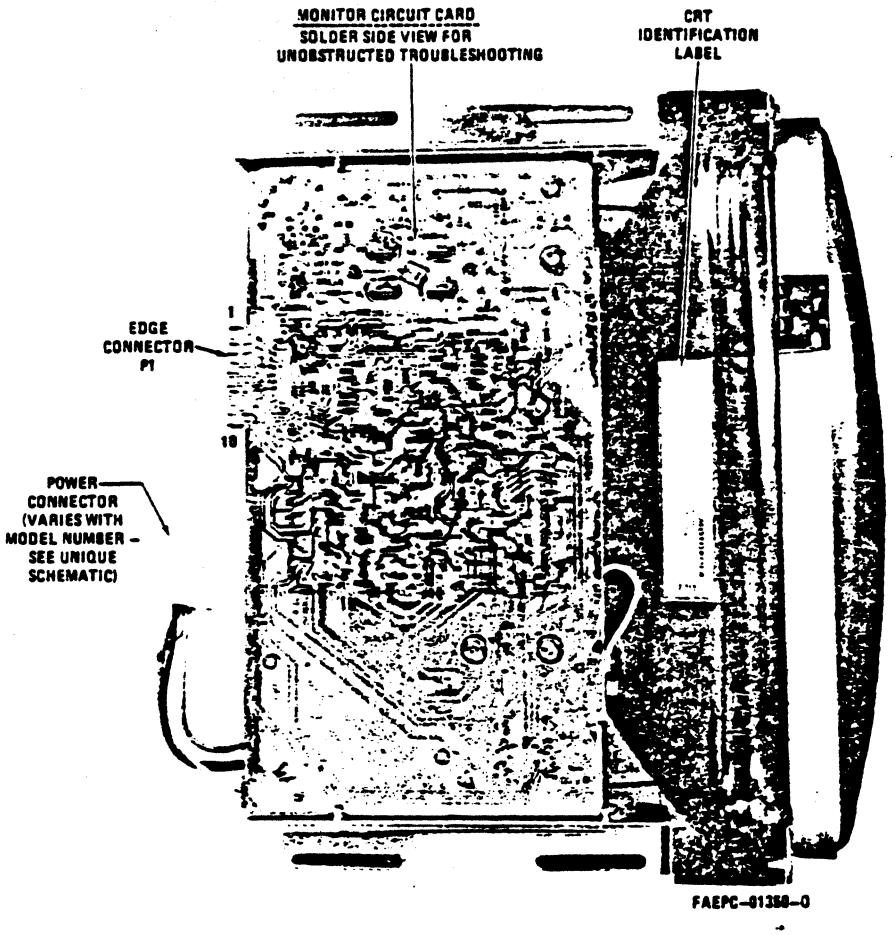

Figure 5. Circuit Card Troubleshooting from Component Side

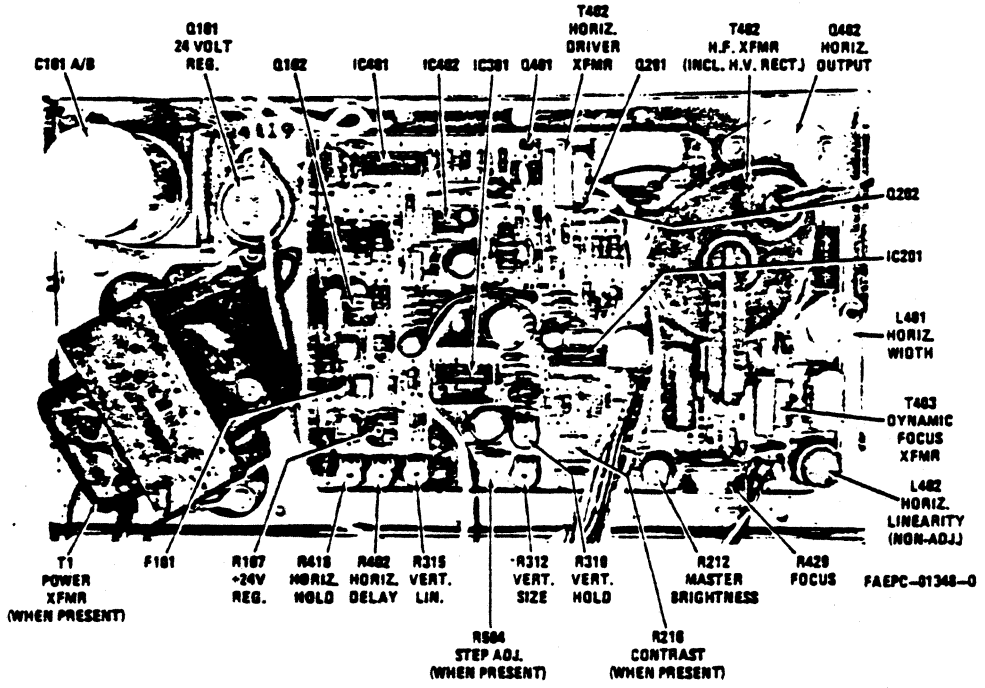

Figure 6. Identification and Location of Circuit Card Components – Adjustable Controls, Transistors, Integrated Circuits, Etc.

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SERVICE TRAINING BULLETIN

PRODUCT	2511/2514
BULLETIN NUMBER	5
HEADING	INSTALLATION PROCEDURES

I. PURPOSE

Bulletin includes add-on installation procedures for 2511/2514 options.

- o RS232 Multipart Interface 2511-1001
- o 5½" Floppy 2511-1002
- o 10MB Winchester 2511-1004
- o Remote Communication Interface 2511-1005

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SERVICE TRAINING BULLETIN

PRODUCT	2511/2514
BULLETIN NUMBER	6
HEADING	WINFLP

I PURPOSE

How to enter the floppy into WINFLP when not seen by the program.

II DESCRIPTION

1. Sometimes the WINFLP Diagnostic will not see the floppy on systems with both Winchester and floppy on them. This is a characteristic of the microcode on the AED controller. The floppy may be entered from the ACCEPTANCE TEST mode as the following example shows on page 2.

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SERVICE TRAINING BULLETIN

PRODUCT 2511/2514

BULLETIN NUMBER 6

HEADING WINFLP

```
THE ADDRESS FOR CONTROL AND STATUS REGISTERS AND INTERRUPT VECTORS ARE:
DEVICE          CSR ADDRESS     INTR VECTOR ADDRESS
RL01/02         174400                  160
RL01/02         175000                  120
RX02            177170                  264
RX02            177150                  270
WINCHESTER DRIVES MAY CONTAIN MORE THAN ONE LOGICAL UNIT NUMBER
THE TRACK RANGE MAY BE SET FOR EACH UNIT INDIVIDUALLY
DEVICES WILL BE EXCLUDED FROM TESTING UNLESS EXPLICITLY SPECIFIED
UNITS WITH DATA TO BE SAVED SHOULD BE WRITE PROTECTED
ENABLING INTERRUPTS WILL CAUSE AN INTERRUPT TO BE GENERATED
WITH EACH DISK OPERATION
REVIEW SETUP INFORMATION BEFORE STARTING TESTING
TYPE A CHARACTER WHEN YOU ARE READY TO PROCEED
 THE CURRENT DEVICE STATES ARE STATUS COUNTERS FOR ERRORS
AND OPERATIONS ARE SHOWN
AFTER THE DISPLAY YOU MAY CLEAR ALL STATUS COUNTERS BY
TYPING 'Y' TO THE QUERY

LGUNIT UNIT DEVICE FLAGS # ERRORS    # RD/WT   # XFERS  # DATA ERRORS

 1      0    W WE TD ID   0          0         0          0
 2      1    W WE TD ID   0          0         0          0
RESET STATUS COUNTERS (Y,N) ?N
CHANGE DEVICE STATUS (Y,N) ?Y
DEVICE (1-2 ) ?3

CSR : 0 177170
PHYSICAL UNIT NUMBER : 0
INTERRUPT VECTOR : 0 264
LOWER TRACK LIMIT : 0
UPPER TRACK LIMIT : 0 114
ENABLE DEVICE TESTING (Y,N) ?Y
WRITE PROTECT UNIT (Y,N) ?N
ENABLE INTERRUPTS (Y,N) ?YTHE CURRENT DEVICE STATES ARE STATUS COUNTERS
FOR E
RRORS
AND OPERATIONS ARE SHOWN
AFTER THE DISPLAY YOU MAY CLEAR ALL STATUS COUNTERS BY
TYPING 'Y' TO THE QUERY

LGUNIT UNIT DEVICE FLAGS # ERRORS    # RD/WT   # XFERS  # DATA ERRORS

 1      0    W WE TD ID   0          0         0          0
 2      1    W WE TD ID   0          0         0          0
 3      0    F WE TE IE   0          0         0          0
RESET STATUS COUNTERS (Y,N) ?Y
```

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SERVICE TRAINING BULLETIN

PRODUCT 2511/2514
BULLETIN NUMBER 7
HEADING RS-232 PORT ASSIGNMENTS

I. REASON: To clarify the RS-232 output port assignments and baud rates.

II. DISCRIPTION: On the 2511/2514 there are 4 ports avaible to the user. Ports 1,2,3 and 4. The base address is 175640 and the vector is 340 for the interface. Refer to the chart below for the recommended use. Page 2 has the pin assignments for the ports.

PORT #	ADDRESS	VECTOR	BAUD	RECOMMENDED USE
PORT 1	175640	340	9600	UNRESERVED
PORT 2	175650	350	1200	DATALINK
PORT 3	175660	360	1200	DIGITAL PLOTTER
PORT 4	175670	370	9600	UNRESERVED

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SERVICE TRAINING BULLETIN

RS-232

(PORT 1)

-< 4 <-- REQUEST TO SEND
-< 6 <-- DATA SET READY
-< 20<-- DATA TERMINAL READY
-< 3 <-- RECEIVED DATA
-< 2 <-- TRANSMITTED DATA
-< 7 <-- SIGNAL GROUND
-< 1 <-- PROTECTIVE GROUND

(PORT 2)

-< 4 <-- REQUEST TO SEND
-< 6 <-- DATA SET READY
-< 20<-- DATA TERMINAL READY
-< 3 <-- RECEIVED DATA
-< 2 <-- TRANSMITTED DATA
-< 7 <-- SIGNAL GROUND
-< 1 <-- PROTECTIVE GROUND

(PORT 3)

-< 4 <-- REQUEST TO SEND
-< 6 <-- DATA SET READY
-< 20<-- DATA TERMINAL READY
-< 3 <-- RECEIVED DATA
-< 2 <-- TRANSMITTED DATA
-< 7 <-- SIGNAL GROUND
-< 1 <-- PROTECTIVE GROUND

(PORT 4)

-< 4 <-- REQUEST TO SEND
-< 6 <-- DATA SET READY
-< 20<-- DATA TERMINAL READY
-< 3 <-- RECEIVED DATA
-< 2 <-- TRANSMITTED DATA
-< 7 <-- SIGNAL GROUND
-< 1 <-- PROTECTIVE GROUND

SANTA CLARA FACILITY

SERVICE TRAINING BULLETIN

PRODUCT	2511/2514
BULLETIN NUMBER	8
HEADING	WINFLP DIAGNOSTICS

I PURPOSE

The new micro-code revision in the AED controller for the floppy and winchester has slight timing differences that give false error messages when running the floppy portion of the diagnostic. The two types of errors are:

1. INTERRUPT
2. DENSITY

II CORRECTION

After loading the WINFLP diagnostic select the system type as a 2515 when running on a 2511/2514. The diagnostic will execute all test sequences correctly.

EXAMPLE:

```
WINFLP V5G
ENTER SYSTEM TYPE (0-2515, 1-2510, 2511,2514) 0
```

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SERVICE TRAINING BULLETIN

PRODUCT	2511/2514
BULLETIN NUMBER	9
HEADING	16-CHANNEL SCANNER

I PURPOSE

There is a potential problem in the scanner option for the 2511/2514 systems. The systems will pass the Random RCT's or closed-loop tests, but it will fail the seltst diagnostics.

II CAUSE

Refer to drawings 1923-4987-2D and 2511-3015-2D. The selector output is wired wrong on the internal pcb. The cable is wired as follows:

OUTPUT CABLE SHIELD TO PIN NO. 9.
OUTPUT CABLE SIGNAL TO PIN NO. 10.

III CORRECT TO:

OUTPUT CABLE SHIELD TO PIN NO. 8.
OUTPUT CABLE SIGNAL TO PIN NO. 9.

SANTA CLARA FACILITY

SERVICE TRAINING BULLETIN

PRODUCT	2511/2514
BULLETIN NUMBER	10
HEADING	ADS BACKPLANE PART #

I PURPOSE

Correct the part # for the ADS backplane.

II CORRECTION

In some of the first 2511's and 2514's shipped the ADS backplane was a 2511-2008. This backplane had all the cables attached to it.

The replacement backplane a 2511-2013 in use now has the cables on plugs. In order for the the new (-2013) backplane to be used in place of the old (-2008) backplane you must also replace the front panel and all the cables.

Part #s

2511-2013	backplane
2511-2038	rear cables
2511-2039	front cables
2501-8068	front panel

SANTA CLARA FACILITY

SERVICE TRAINING BULLETIN

PRODUCT	2511/2514
BULLETIN NUMBER	11
HEADING	WINCHESTER BAD BLOCK UTILITY

I PURPOSE

This is a program to collect data on the bad block problems the field is having. Send a a copy of the printout to Product Service at Santa Clara.

Description of Utility Program BADBLK.COM

BADBLK.COM was generated as a result of the RT-11 DIRECTORY/BAD command response of "too many bad blocks", when a bad block scan encounters more than 128 errors on a storage device. The program will allow the user to find the bad areas on each of the drives that would normally be unidentifiable. This program will be used to help us identify winchester problems both inhouse and in the field.

***Note: This program is similiar to DIR/BAD and does not destroy any data on the disk!

**Note: When running this test patience must exercised because for each bad block it encounters, eight retries are associated with it.

In order to run this utility under RT-11 do the following:

Install Runtime floppy in DY0:
Copy BADBLK.COM to DL0: (and IND.SAV if running on VCS)
Type: IND BADBLK (RETURN)

***NOTE: It will take over an hour to run from the floppy and 18 min. if run from the winchester.

The program will begin by deleting and creating files called DY0DL0.DAT and DY0DL1.DAT. File DY0DL0.DAT = DL0 and DY0DL1.DAT = DL1. The filenames are derived from using DY0 as the output device and DL0 or DL1 as the device under test. These files will be used to store any bad block information found, which includes Block numbers, Filenames and error messages.

The disks are segmented into 64 block increments. Bad block scans will be done on each segment and any bad block information and informational error messages will be written into the appropiate file.

There are three Dup messages that may appear during the running of this program:

1). " ? Dup-W-Input Directory Error ".
2). " ? Dup-I-No Bad Blocks Detected "
3). " ? Dup-W-Bad Blocks Detected n "

The first message is a fatal error that indicates that RT-11 was unable to read the directory and could not write the filenames associated with the bad blocks to the appropiate files.

The second message may be seen at the completion of each scanned segment indicating, there were no bad blocks in that area.

The final message will inform the user how many bad blocks were found in the previously scanned area.

In the case where the error " Dup Directory Input" occurs it means that there are bad blocks within the first 64 block section and it will be the necessary to reformat the disk surface. The user should at this point backup (onto floppies) all possible files and then reformat.

If there are no errors in the blocks 0 to 64, then the directory is still intact.

If no filename is written and only block numbers appear in DYODLO or DYODL1.DAT then the blocks are unused. The Create command can be used to overlay the bad block area with a .BAD file, as described in the example below.

Also, if there are no errors in blocks 0 to 64 and errors are found inside DYODLO and DYODL1.DAT with filenames, these files should be deleted from the disk. Because, RT-11 will not allow the user to write over already existing files. Then using the Create command to overlay the bad block area with a .BAD file to insure that good data cannot be written in these areas. See example below.

Example: Create a FILE.BAD over blocks 80. to 100.

TYPE: CREATE DL0: or DL1:FILE1.BAD/STA:80./ALL:20. (return)

This will CREATE FILE1.BAD on either DL0 or DL1
Starting block = 80
Allocate = 20 blocks

These values 80 and 100 are decimal values and can be taken directly from the listing of DYODLO.DAT or DYODL1.DAT. (They are the numbers that are followed by a period to indicate decimal values.)

**Note: Although a file.bad has overlayed the bad block areas, this does not mean that the DIR/BAD command will work any different. Because, the bad block reference table has not been updated.

These files will be written to DY0 and to examine the information contained in DYODLO.DAT and DYODL1.DAT set the Auto-Print mode and then TYPE the files. From this listing you will be able to determine the specific blocks that are bad and the distribution.

SANTA CLARA FACILITY

SERVICE TRAINING BULLETIN

PRODUCT	2511/2514
BULLETIN NUMBER	12
HEADING	DRIVE BNC

I. PROBLEM

The drive BNC cable on the 2511 and 2514 systems must be isolated from the chassis ground. Therefore, the BNC connector must be of the self-insulating type.

II. ACTION

When replacing the drive cable (P/N 2511-2023) make sure the nylon insulator is installed at the front panel bulkhead hole between the BNC connector and the chassis.

SANTA CLARA FACILITY

SERVICE TRAINING BULLETIN

PRODUCT	2511/2514
BULLETIN NUMBER	13
HEADING	SHOCK 2.1 RELEASE

I. PURPOSE

Notification of Shock software release. Customer updates are chargable per the effective price schedule.

II. EFFECTIVITY

Release date Jan 3, 1985

Document/software	Revision	Description
2511-0640	2.1	5 1/4" diskette
2501-0640	2.1	8" diskette
2511-0140	3.0	2511 manual
2501-0140	7.0	250X manual

III. CHANGES AND ENHANCMENTS

1. Transfer function smoothing and truncation added.
2. Drive waveform display added to analysis and H(f) calculation
3. Random G's RMS displayed for transfer function output.
4. Line editor for shock synthesis breakpoints table.
5. Current and previous system gain is printed when a new loop check is made.
6. Truncate feature added to the transfer function.
7. Output menu.
8. Analog capture menu.
9. Order of entry for a transfer function, "initialize" now type, # of averages, and level.
10. NLAF and MAXREF added below "Lev XX dB" for display of response waveform.
11. When initializing a setup all previous entrys made are reprinted if a subroutine is called.
15. When scaling in display, a 0 entry crash was eliminated.
16. Entering 1 SRS component of 0 value would cause crash has been eliminated.
17. During output a message to explain 'CR' will disable pause if printed.
18. When in 2.6 decades, in shock synthesis, and a large max frequency change is made, the table will list a number of zeros for frequencies.

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SERVICE TRAINING BULLETIN

19. When in analog capture, 125mv will now trigger on the input channel.
20. Trigger level is now calculated on a 64 step scale from 100 to -100 percent.
21. Both smoothed and unsmoothed H(f) and coherence are saved and earlier version disk files H(f) and coherence are duplicated.
22. Explanation of Classical pulse added to manual
23. Setup for analog capture display added to manual
24. Recalling saved file with all waveforms saved after an output no longer crashes the system.

S A N T A C L A R A F A C I L I T Y

S E R V I C E T R A I N I N G B U L L E T I N

PRODUCT	250X/2510/2511/2514
BULLETIN NUMBER	14
HEADING	ISAP EXPONENTIAL AVERAGING BUG
DATE	22-MAY-85

I. PROBLEM

There are a multitude of PPR's which pertain to one bug in ISAP - the Fortran crash during exponential averaging.

II. ACTION

Until the next release of ISAP, the problem can be circumvented by turning off the instantaneous display during averaging as follows:

DISPLAY:

INSTANT:

--> NONE
1-CHANNEL
2-CHANNEL
4-CHANNEL

S A N T A C L A R A F A C I L I T Y

S E R V I C E T R A I N I N G B U L L E T I N

PRODUCT	2511/2514
BULLETIN NUMBER	15
HEADING	FORMGR
DATE	10-JUL-85

I. PROBLEM

The format routine 'FORMGR' or 'FORMAT' will not work on AED controllers with revision K proms. the system will respond to A format attempt with "DEVICE NOT READY".

For the AED controller to support the protocol of the DEC RX02 single and double density requirements, it is necessary to check the status of the device prior to formatting. When this is done on a new diskette that has not been previously formatted either by the user or the manufacturer, a read error will occur because there are no soft sectors written on the diskette. Most new 5 1/4 inch diskettes are not preformatted by the manufacturer.

II. ACTION

Runtime RT-11 diskette (2511-0605) has been ECNed to include FORMGR.SAV routine.

Most 2511/14 applications diskettes (Random, Sine, Shock, ISAP, SRAND, RRAND, TSL25, Diag) also include a copy of RT-11 on the diskettes as a convenience to the user (current diskettes do not have FORMGR).

In order to distinguish between the old and revised RT-11 on these diskettes, the following line of text is added to the diskette labels:

(Runtime RT-11 V2)

The affected diskettes with the "(Runtime RT-11 V2)" label and the file changes which include FORMGR.SAV, FORMAT.SAV and SYSINT.SAV are:

2511-0610-5.3	TSL
2511-0620-2.0	Random
2511-0621-1.1	RRAND
2511-0622-1.0	SRAND
2511-0630-2.0	Sine
2511-0640-2.2	Shock
2511-0691-3.0	Diag
2501-0650-5.1	ISAP
2501-0655-4.0	INTEN

When in doubt, use the FORMGR routine when formatting.

S A N T A C L A R A F A C I L I T Y

S E R V I C E T R A I N I N G B U L L E T I N

PRODUCT	2511/2514
BULLETIN NUMBER	16
HEADING	AED CONTROLLER PROMS
DATE	MARCH 5, 1986

I. PROBLEM

AED recently changed the artwork and proms of the floppy/winchester controller which caused Sine problems when data storage was being used during a test.

II. SYMPTOMS

SINE Version 2.1 with data storage during test enabled will fail and exhibit the following:

1. Screen erases
2. Message 'DAS ERROR' appears (see page 3-69 of Sine manual revision 3, change 1 dated Sept. 85)
3. RT11 prompt '.' appears on screen

SI Version 2.0 with data storage during test enabled will fail and exhibit following:

1. Screen erases
2. One of the following:
   a) KMON TRAP TO 4 XXXXXX
   b) ODT prompt '@'
   c) RT11 prompt '.'

III. IDENTIFICATION

The AED controller can be found in two artwork versions and multiple PROM versions.

Artwork version B with PROM version H and below DO NOT have a problem.

Artwork version E with PROM versions K and L CAUSE the problems defined above in the SINE software.

Artwork version E with PROM version M and above DO NOT have a problem.

WARNING: PROM VERSION K AND ABOVE DO NOT OPERATE IN ARTWORK VERSION B

PROM VERSION H AND BELOW DO NOT OPERATE IN ARTWORK VERSION E

IV. REPAIR/REPLACEMENT PROCEDURE

Customers who have encountered the problem will require service to exchange the controller with either artwork revision listed above that correct the error. Field Service Reports should indicate ACTION 5 (Retrofit factory, no charge) for only the portion of the call applicable to the change.

MRC stock and field service stock should be purged of all Artwork version E with PROM version L or K.

MRC personnel will need to exchange the L or K proms with M or above on all returned controllers. (PROMs can be obtained through STP and old versions must be returned to STP for exchange with AED)

V. PROM CROSS REFERENCE

Etch E through H

LOCATION	WAS		SHOULD BE
A25	07101 K or L	uCode	07101 M
A2	07102 K or L	uCode	07102 M
	08001 B	DMA	05401 B

Reference 2515 STB 24 for additional information on AED controller restrictions using the Q-BUS Expansion option.

S A N T A C L A R A F A C I L I T Y

S E R V I C E T R A I N I N G B U L L E T I N

PRODUCT	2511/2514/250X
BULLETIN NUMBER	17
HEADING	DATA LINK CABLES

I. INTRODUCTION

Customers who have both 251x and 250x STP products generally need data transfer ability between both systems via DATA LINK. To accomplish this, you need to connect through a modem or direct through a null modem. The cables supplied with the older 250x DATA LINK options and the present 251x are meant to connect to modems only.

II. CABLE TYPES AND USES

The cables listed below are available from Digital Equipment Corporation. Compatible cable replacements are common off-the-shelf items from electronics suppliers.

DEC BC05C-25

The BC05C is a 25 foot RS232C EIA input/output cable used for asynchronous, serial line unit interfacing. The cable can be used for full or limited modem control applications. One end of the cable mates with the DL11 interface in a 250x and the other end is a RS232C male connector that mates with a modem device or null modem. This cable was supplied with RS232 options on the 250x products.

DEC BC05D-25 is a 25 foot asynchronous modem interfacing cable with RS232C connectors at both ends. It is a full modem control cable with 25 conductors. The BC05D will connect to a male connector on a modem and a female connector on a terminal. This cable can be used as an extension cord for the BC05C.

DEC BC22A-25

The BC22A (25 foot) is a special cable for connection to asynchronous EIA devices. It is a 6 conductor cable with 25 pin female EIA RS232 connectors on both ends, wired in null modem configuration. This cable would be used to mate the 2511/2514 directly to the 250x's BC05C with out a modem.

M I L P I T A S F A C I L I T Y

S T R U C T U R A L T E S T P R O D U C T S

S E R V I C E T R A I N I N G B U L L E T I N

PRODUCT	2511/2514
BULLETIN NUMBER	18
HEADING	LSI GRANT JUMPERS
DATE	APRIL 29, 1986

I. PROBLEM

It is occasionally desireable to remove the Q-DAS or other LSI peripheral to isolate and trouble shoot the LSI bus. This will effectively open the LSI bus and prevent the boot operation from completing.

W A R N I N G

ONLY THE Q-DAS (2511-4701) CAN RESIDE IN SLOT 2 A-F

SERIOUS DAMAGE COULD RESULT TO OTHER OPTIONS INSTALLED IN THESE LOCATIONS

II. ACTION

There are two choices available to bypass the open bus condition:

1. Insert LSI bus grant cards into the vacated slot(s). (P/N 2267-4750)

2. Physically install the hardware jumpers on the backplane to simulate the LSI grant card in the vacant slot(s).

AM2 TO AN2	Interrupt Acknowledge IN to OUT
AR2 TO AS2	DMA Grant IN to OUT

and/or

CM2 TO CN2	Interrupt Acknowledge IN to OUT
CR2 TO CS2	DMA Grant IN to OUT

and/or

EM2 TO EN2	Interrupt Acknowledge IN to OUT
ER2 TO ES2	DMA Grant IN to OUT

M I L P I T A S F A C I L I T Y

S T R U C T U R A L T E S T P R O D U C T S

S E R V I C E T R A I N I N G B U L L E T I N

PRODUCT	2511/2514
BULLETIN NUMBER	19
HEADING	2501 Unibus Interface
DATE	21-AUG-1986

This is a repeat of an old STB #15 put out in August 1981 when the 2510 MicroModal system was introduced. There have been some problems reported from the field on the older Unibus interfaces (2501-4703) in the spare kits when used in VCS systems. By resending this STB we hope this will clear-up some of the problems. Please note that all reference to the 2510 system also applies to the 2511/2514 systems too.

I. PROBLEM

All 2501-4703 Unibus interface modules in the 2510 MicroModal need a minor modification for proper operation.

II. ACTION

C38 must be removed for 2510. C38 is a 1.0 uf and located near pin 14 of u8. Older unibus modules incorrectly label this capacitor as C5. A stick-on label should be affixed to the module to indicate the absence of C38.

An ECN is in progress to incorporate a dip switch with appropriate silk screen labeling on future interface modules. Old modules cannot be retrofitted with a switch.

2510's will NOT run the LSI-11 Traps Test when the capacitor is INSTALLED.

250x's with programmer's panel will not boot correctly with the capacitor NOT INSTALLED.

Final note: The switch has been on the modules now for a few years, but some of the older modules without the switch are still out there. They will work fine in the VCS systems as long as you remove the cap.

M I L P I T A S F A C I L I T Y

S T R U C T U R A L T E S T P R O D U C T S

S E R V I C E T R A I N I N G B U L L E T I N

PRODUCT	2511/2514
BULLETIN NUMBER	20
HEADING	20MB Winchester and Controller
DATE	25-AUG-1986

I. PROBLEM

The addition of 20MB 1/2 hight winchesters and the rev of the AED controller on the systems. The AED controller must be at a microcode rev 'R' for the 20 MB winchester to work correctly. The following is a updated STB 16 for the 20MB winchester.

II. IDENTIFICATION

The AED controller can be found in two artwork versions and multiple PROM versions.

- Artwork version B with PROM version H and below CAN NOT BE UPGRADED to 20 megabyte winchester use.
- Artwork version E with PROM versions K and L CAN BE UPGRADED (see following table)
- Artwork version E with PROM versions M and N ONLY need the proms upgraded to version R.

WARNING:

PROM VERSION K AND ABOVE DO NOT OPERATE IN ARTWORK VERSION B

PROM VERSION H AND BELOW DO NOT OPERATE IN ARTWORK VERSION E

PROM CROSS REFERENCE

Etch E through H

LOCATION	WAS			SHOULD BE
A25	07101	K,L,M or N	uCode	07101 R
A30	07102	K,L,M or N	uCode	07102 R
A74	08001	B	DMA	05401 B
A45	06401	C	I/O	06041 D or 12501 A
A46	06801	D	I/O	06801 E or 12601 A
A47	07601	B	I/O	07601 C or 12701 A
A60	07701	B	I/O	07701 C or 12801 A

After updating to version R ucode the controller is still compatible with 10 megabyte winchesters. Only the configuration prom (A34) is changed. Also the new version is compatible with all the floppys (full and 1/2 height disks).

Here are the part numbers for all the disk drives used in the systems:

1765-3221	Full Height 10MB Winchester
1765-3222	Full Height Floppy
2515-6056	10MB Configuration PROM
1765-3247	1/2 Height Floppy
1765-3286	1/2 Height 20MB Winchester
2515-6065	20MB Configuration PROM

M I L P I T A S F A C I L I T Y

S T R U C T U R A L T E S T P R O D U C T S

S E R V I C E T R A I N I N G B U L L E T I N

PRODUCT	2511/2514
BULLETIN NUMBER	21
HEADING	LSI 11/73 CPU
DATE	25-AUG-1986

I. PROBLEM

The LSI 11/73 CPU will ONLY work with the AED Controller at a microcode version 'R' and the NEW VCS Backplane (2511-2014).

II. IDENTIFICATION

The AED controller can be found in two artwork versions and multiple PROM versions.

- Artwork version B with PROM version H and below CAN NOT BE UPGRADED to LSI 11/73 CPU use.
- Artwork version E with PROM versions K and L CAN BE UPGRADED (see following table)
- Artwork version E with PROM versions M and N ONLY need the proms upgraded to version R.

WARNING:

PROM VERSION K AND ABOVE DO NOT OPERATE IN ARTWORK VERSION B

PROM VERSION H AND BELOW DO NOT OPERATE IN ARTWORK VERSION E

PROM CROSS REFERENCE

Etch E through H

LOCATION	WAS			SHOULD BE
A25	07101	K,L,M or N	uCode	07101 R
A30	07102	K,L,M or N	uCode	07102 R
A74	08001	B	DMA	05401 B
A45	06401	C	I/O	06041 D or 12501 A
A46	06801	D	I/O	06801 E or 12601 A
A47	07601	B	I/O	07601 C or 12701 A
A60	07701	B	I/O	07701 C or 12801 A

M I L P I T A S F A C I L I T Y

S T R U C T U R A L T E S T P R O D U C T S

S E R V I C E T R A I N I N G B U L L E T I N

PRODUCT	2511/2514
BULLETIN NUMBER	22
HEADING	LSI 11/73 Jumper Configuration
DATE	25-SEP-1986

I. INTRODUCTION

The KDJ11-A has nine jumpers for the user selectable features. The configuration of these jumpers are listed below. A jumper is installed by pushing an insulated jumper wire on the two wirewrap pins provided on the module. W9 is the closest to the large microprocessor chip.

JUMPER IDENTIFICATION

JUMPER	STATUS	FUNCTION
W9	OUT	BEVENT register enabled
W8	OUT	Wakeup circuit enabled
W7	IN	Power-up option 2 (PC at 173000, PS=340)
W6	IN	Bootstrap address bit (12) set
W5	IN	Disable HALT traps to location 4
W4	IN	Bootstrap address bit (13) set
W3	OUT	Power-up option 2 (PC at 173000, PS=340)
W2	IN	Bootstrap address bit (14) set
W1	IN	Bootstrap address bit (15) set

M I L P I T A S F A C I L I T Y

S T R U C T U R A L T E S T P R O D U C T S

S E R V I C E T R A I N I N G B U L L E T I N

2 5 1 1 / 2 5 1 4 I N D E X

NUMBER	DESCRIPTION
1	Patch for WINFLP
2	Winchester Disk Format
3	11/23 Configuration
4	Large Screen Monitor
5	Installation Procedures (Options)
6	WINFLP Diagnostic
7	RS-232 Port Assignments
8	WINFLP Errors on Floppy
9	16 Channel Scanner Wire Error
10	ADS Backplane Numbers
11	Winchester Bad Block Utility Program
12	Drive BNC
13	Shock 2.1 Release
14	ISAP Exponential Averaging BUG
15	FORMGR Changes
16	AED Controller PROMs
17	DATA LINK Cables
18	LSI Grant Jumpers
19	2501 Unibus Interface
20	20MB Winchester and Controller
21	LSI 11/73 CPU
22	LSI 11/73 Jumper Configuration
23	16 Channel Selector Diagnostic

SERVICE TRAINING BULLETIN

PRODUCT	2511/2514
BULLETIN NUMBER	23
HEADING	16 Channel Selector Diagnostic
DATE	7-NOV-1986

I. PROBLEM

There is an error between the 2511 Diagnostic Manual and the Diagnostic Disk for the 16 Channel Selector Option. In the manual the diagnostic is labeled "CHSEL" and in ADSD1B on the disk it is "SELTST".

II. ACTION

The name of the subroutine in the ADSD1B was changed from "SELTST" to "CHTST" to match the manual. The revision of the disk in now 2511-0691-3.4. Since this is only a name change and not a enhancement there will be no updated disk sent to the field.

If you want your disk updated to 3.4 see your local Application Engineer for help with TSL25. When renaming the subroutine use the TSL25 'RENAME' command, then save it back to the disk with 'SAVALL'. Also change the volume ID on the diskette and the diskette lable.

M I L P I T A S F A C I L I T Y

S T R U C T U R A L T E S T P R O D U C T S

S E R V I C E T R A I N I N G B U L L E T I N

PRODUCT	2511/2514
BULLETIN NUMBER	24
HEADING	LSI 11/73 OnBoard Micro-Diagnostics
DATE	17-DEC-1986

I. INTRODUCTION

The LSI 11/73 CPU has onboard power-up diagnostics. The following will explain how to use them.

Diagnostic LED's:

The module has four LEDs that monitor the module. The LEDs are designated as D1 through D4 and are located on the edge of the module. The D1 LED is turned on only when the module is operating in the micro-ODT mode, The D2-D4 LEDs are used with the diagnostics run during the power-up sequence. These LEDs are turned on at the beginning of the sequence, and upon the successful pass of the diagnostic are turned off. Each LED monitors a primary function of the module as described below.

LED D1-Micro-ODT is entered.

LED D2-Module could not do a read/write transaction to the CPU Error register. This indicated the microcode is not running.

LED D3-Module attempted to read location 17777560 and timed out. This indicates the console terminal is not responding.

LED D4-Module attempted to read location 0 and timed out or attempted to read location 17777700 and did not time out. This indicates the memory system is not responding.

The LEDs can indicate the most probable failure when troubleshooting the system as described below.

Probable System Failure

D1	D2	D3	D4	Probable Failure
X	on	on	on	CPU Module
X	off	on	on	LSI-11 bus
X	on	off	on	CPU module
X	off	off	on	LSI-11 bus or memory
X	on	on	off	CPU module
X	off	on	off	SLU module (on CPU pcb)
X	on	off	off	CPU module
X	off	off	off	Console terminal

M I L P I T A S F A C I L I T Y

S T R U C T U R A L T E S T P R O D U C T S

S E R V I C E T R A I N I N G B U L L E T I N

PRODUCT	2511/2514
BULLETIN NUMBER	25
HEADING	PARK Command & LSI 11/73's
DATE	17-DEC-1986

I. PROBLEM

When trying to execute the winchester PARK command the system TRAPS back to the RT-11 monitor, instead of going to ODT at address 001016.

II. ACTION

Install jumper W5 on the 11/73 to disable Monitor HALT traps to ...ation 4 and force it to an ODT Halt. For futher information ... the rest of the jumpers refer to 2511 STB 22.