

ORIGINATOR	JOE ALLGEYER	DATE	PAGE	REV
VISION BY		09-21-89	1 OF 47	00

APPROVALS:

T.E.D. SECTION MANAGER	DATE	QUALITY ASSURANCE	DATE
CHUCK WOLFF		DANNY FRISBIE	
TEST AREA MANAGER #1	DATE	TEST AREA MANAGER #2	DATE
ROGER HARRINGTON			

TITLE

~~TOPGUN SID TEST PROCEDURE~~

ASSY	MODEL NO.	P.N.
------	-----------	------

AREAS AFFECTED:

<input type="checkbox"/> INCOMING	<input type="checkbox"/> BURN-IN	<input type="checkbox"/> CABINET	CHANGED TEST REQUIREMENTS
<input checked="" type="checkbox"/> DTOPS	<input type="checkbox"/> SYSTEMS	<input type="checkbox"/>	

PROPRIETARY INFORMATION

THE SUBJECT MATTER OF THIS SPECIFICATION IS STRICTLY FOR THE USE OF DATA GENERAL PERSONNEL. ALL RIGHTS ARE RESERVED AND THIS DOCUMENT CANNOT BE COPIED IN PART OR IN WHOLE WITHOUT SPECIFIC PERMISSION FROM DATA GENERAL

\*\*\*\*\*

===== ADDED STEPS FOR DELETING DGUX =====

\*\*\*\*\*

*IP at date password DG remote FE for RBOS*

*sem) b st(incr(0),4) maverick / AV4000*

*b sd(incr())usr:/stand/diag maverick*

*b cied()usr:/stand/diag AV5000 Topgun*

*b cimd()usr:/stand/diag AV6000*

TABLE OF CONTENTS  
-----

	Page
1.0 INTRODUCTION	
Scope.....	4
2.0 APPLICABLE DOCUMENTS.....	4
3.0 TEST EQUIPMENT.....	4
4.0 TEST DESCRIPTION.....	4
5.0 SETUP	
Configuration.....	5
Board Jumpering.....	7
SCSI Controller.....	7
ESDI Controller.....	8
Async Controller.....	9
Host Adapter.....	13
Sync Controller.....	17
LAN Controller.....	23
Terminal Configuration.....	26
6.0 TEST PROCEDURE	
Powerup Testing.....	26
RBOS Testing.....	30
UNIX Testing.....	30
7.0 PASS/FAIL/RETEST REQUIREMENTS	
Allowable Errors.....	33
Retest Requirements.....	34
Disk Verification.....	35
Powerup Selftest Error Codes.....	36
RBOS Error Codes.....	36

## 1.0 INTRODUCTION

### 1.1 Scope

This document is the Apex SID test procedure for the TOPGUN AViON product line.

## 2.0 APPLICABLE DOCUMENTS

001-32885	Dual Processor 16MB CPU Schematic
001-34212	Single Processor 16MB CPU Schematic
001-34105	Single Processor 8MB CPU Schematic
003-3007	CPU IPL
001-4895	Expansion Memory Schematic
003-	Expansion Memory IPL
118-4846	Sync Controller Purchase Spec
118-4849	Host Adapter Controller Purchase Spec
118-4847	Async Controller Purchase Spec
118-4852	LAN Controller Purchase Spec
118-4826	ESDI Controller Purchase Spec
118-4827	SCSI Controller Purchase Spec

## 3.0 TEST EQUIPMENT

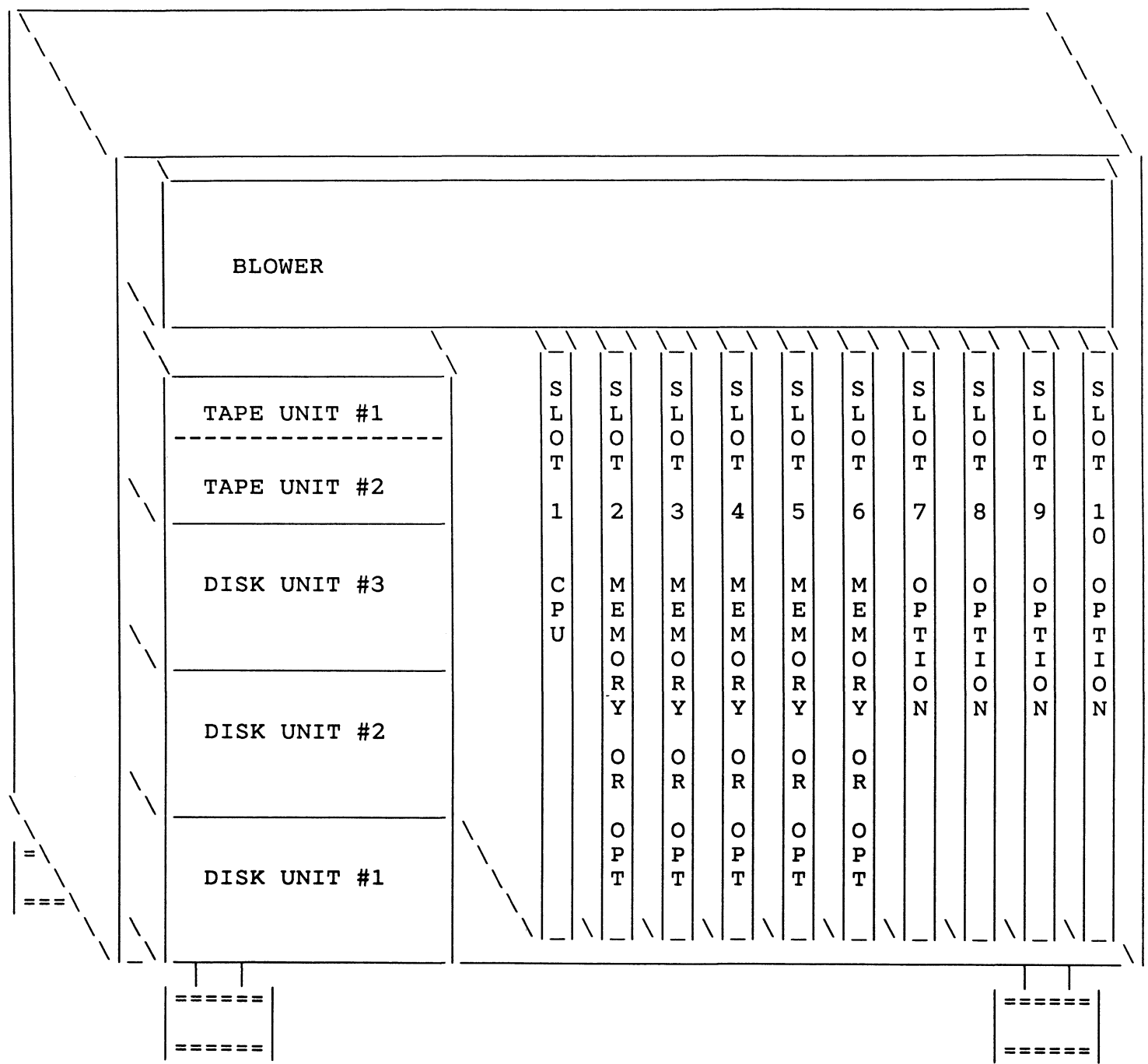
- 1 - Data General D211 Terminal, or better
- 1 - 005-34255,34992, or 34993 AViON RS-232 Cable

## 4.0 TEST DESCRIPTION

- A. POWERUP SELF TEST - A cursory test that is executed from PROM as part of the powerup sequence.
- B. XDIAGS - Extended powerup diagnostics that test boot memory and boot path integrity.
- C. RBOS - System level diagnostic offering complete system performance integrity.

5.0 SETUP

5.1 Configuration



CONFIGURATION TABLE  
=====

SLOT TYPE	COMPONENT	PART NUMBER	MODEL #		MIN/MAX PER SYST	BOARD
			PRELIM.	FINAL		
* 1	SINGLE CPU W/8MBYTE	005-34105	G70031-P		1	CPU
1	SINGLE CPU W/16MBYTE	005-34212	G70032-P		1	CPU
1	DUAL CPU W/16MBYTE	005-32885	G70033-P		1	CPU
2-5	48MB EXPANSION MEMORY	005-33490	7003		0/4	MEMORY
	32MB EXPANSION MEMORY	005-34397	7002		0/4	MEMORY
	16MB EXPANSION MEMORY	005-34398	7001		0/4	MEMORY
2-10	SCSI CONTROLLER	005-33386	7407	6544	1/2	OPTION
	ESDI CONTROLLER	005-33384	NOT AN ADD-ON		1/1	OPTION
	ASYNC CONTROLLER	005-34204	7400	4734	0/2	OPTION
	T SERVER HOST ADAPTER	005-34207	7401	4735	0/4	OPTION
	NON-INTEL LAN CONT	005-34209	7405	4739	0/2	OPTION
	SYNC CONTROLLER	005-34206	7404	4738	0/2	OPTION

The option board configuration rules for topgun are as follows:

1. The total number of cards must not exceed the total number of available slots.
2. Cards listed higher in the configuration table have first choice of slots when configuring the system. (ie. begin configuring at slot 1 and fill each and every slot until all boards are configured.)
3. \* Not offered for external shipments with unix software.  
(Unix Model numbers are P001AHU1CA, Q001AHU1CA, Q001APU1CA, Q001AQU1CA, Q001ARU1CA, Q001ASU1CA)
4. Unix Rev 4.10 has the following hardware limitations: 005-34204's and 005-34207's cannot be configured in the same system. A maximum of two 005-34204's or a maximum of one 005-34207 can be configured in a system. This limitation must be honored on sales orders that have the Unix model numbers shown in step 3.

2.2 Peripheral Configuration

The following peripherals are available on topgun systems.

SIZE	PART NUMBER	MODEL	LIMITATIONS
------	-------------	-------	-------------

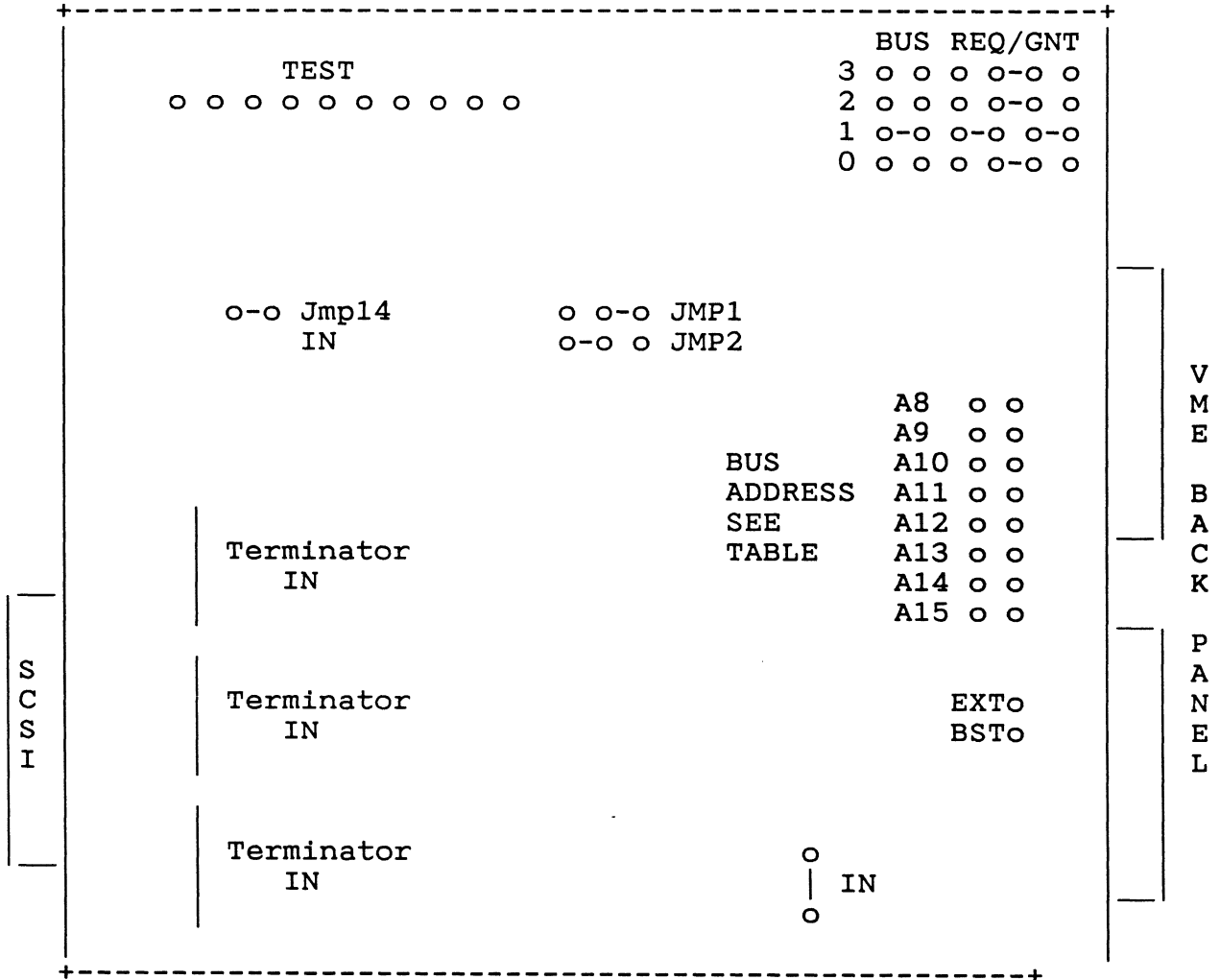
380MB DISK	118-4670	G6442-I	MINIMUM UNITS 1, MAXIMUM 3
645MB DISK	118-4670	G6555-I	MINIMUM UNITS 1, MAXIMUM 3
150MB TAPE	118-4337	G6577-I	MINIMUM UNITS 1, MAXIMUM 2

=====

FORM NO.10-05-030A

## 5.2 Board Jumpering

### 5.2.1 SCSI Controller 005-33886 (118-4827) cisc(X)



\* FACTORY DEFAULT ADDRESS

BOARD #	ADDRESS	A15	A14	A13	A12	A11	A10	A9	A8
*0	FFFFFF300	OUT	OUT	OUT	OUT	IN	IN	OUT	OUT
1	FFFFFF500	OUT	OUT	OUT	OUT	IN	OUT	IN	OUT
2	FFFFFF700	OUT	OUT	OUT	OUT	IN	OUT	OUT	OUT

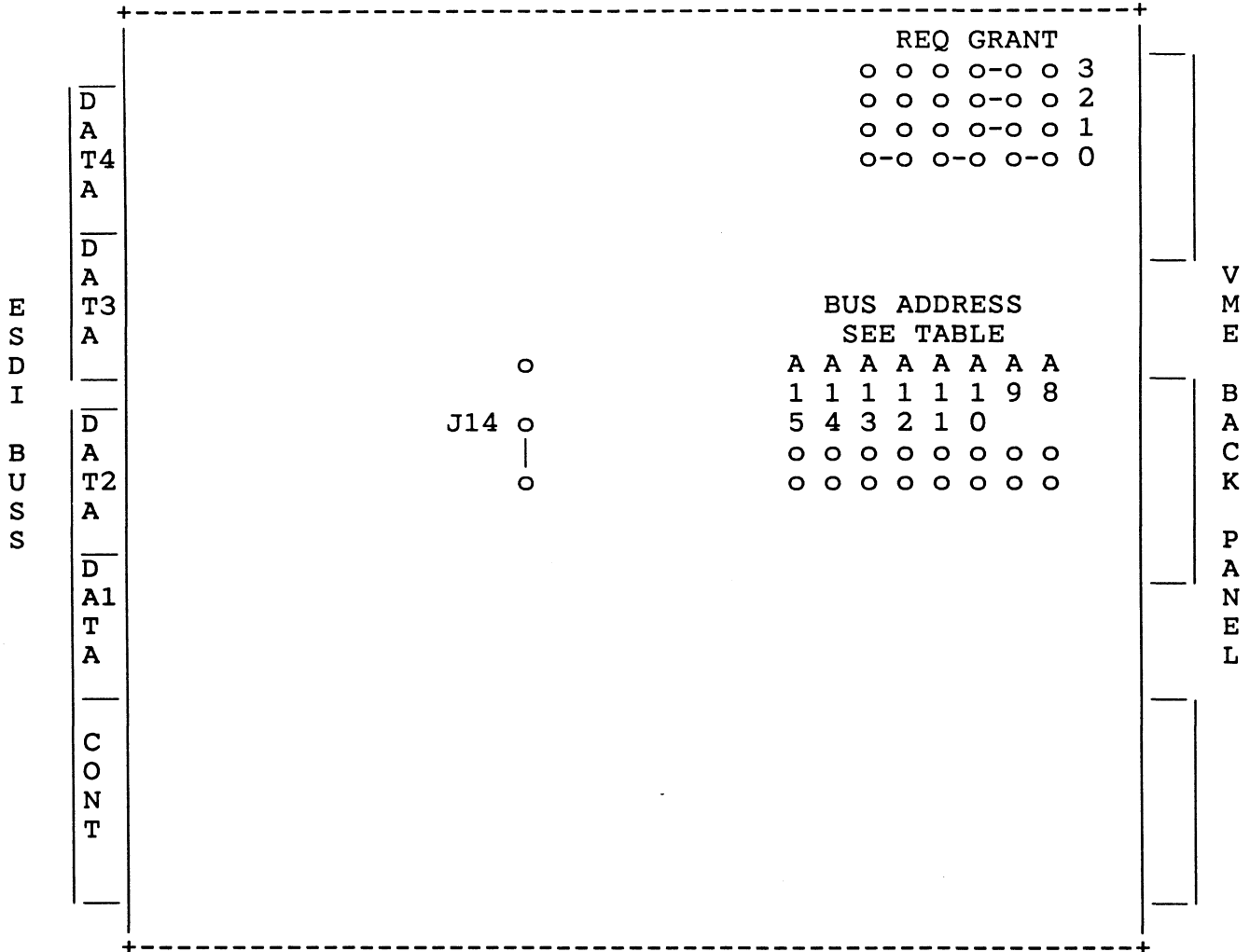
3	FFFFFF900	OUT	OUT	OUT	OUT	OUT	IN	IN	OUT
---	-----------	-----	-----	-----	-----	-----	----	----	-----

=====

FORM NO.10-05-030A



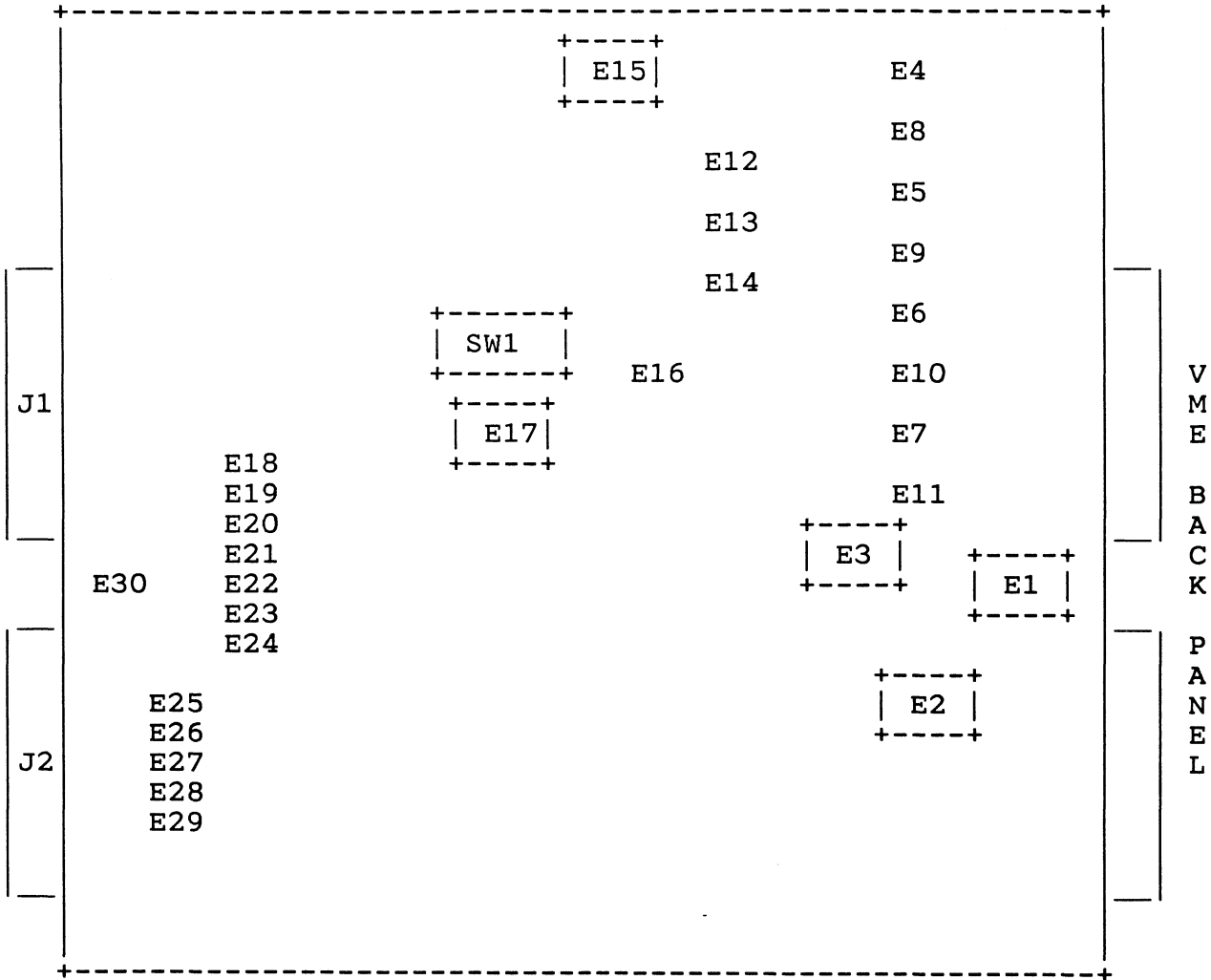
5.2.2 ESDI Controller 005-34438 cisd(X)



\* FACTORY DEFAULT SETTING

BOARD #	ADDRESS	A15	A14	A13	A12	A11	A10	A9	A8
*0	FFFFEFO0	OUT	OUT	OUT	IN	OUT	OUT	OUT	OUT

5.2.3 Async Controller 005-34204 (118-4847) syac(X)



JUMPERS MARKED =OUT= OR =IN= SIGNIFY NON FACTORY INSTALLED POSITIONS

JUMPER	PIN	FUNCTION	syac(0)	syac(1)
E1	1-2	IN=SPECIFY BIT A23		IN
	3-4	A22		IN
	5-6	A21		IN
	7-8	A20		IN
	9-10	A19		IN
	11-12	A18		IN
	13-14	A17	IN	OUT

| 15-16 | A16 | IN |  
+-----+-----+-----+-----+

=====

FORM NO.10-05-030A

MPERS MARKED =OUT= OR =IN= SIGNIFY NON FACTORY INSTALLED POSITIONS

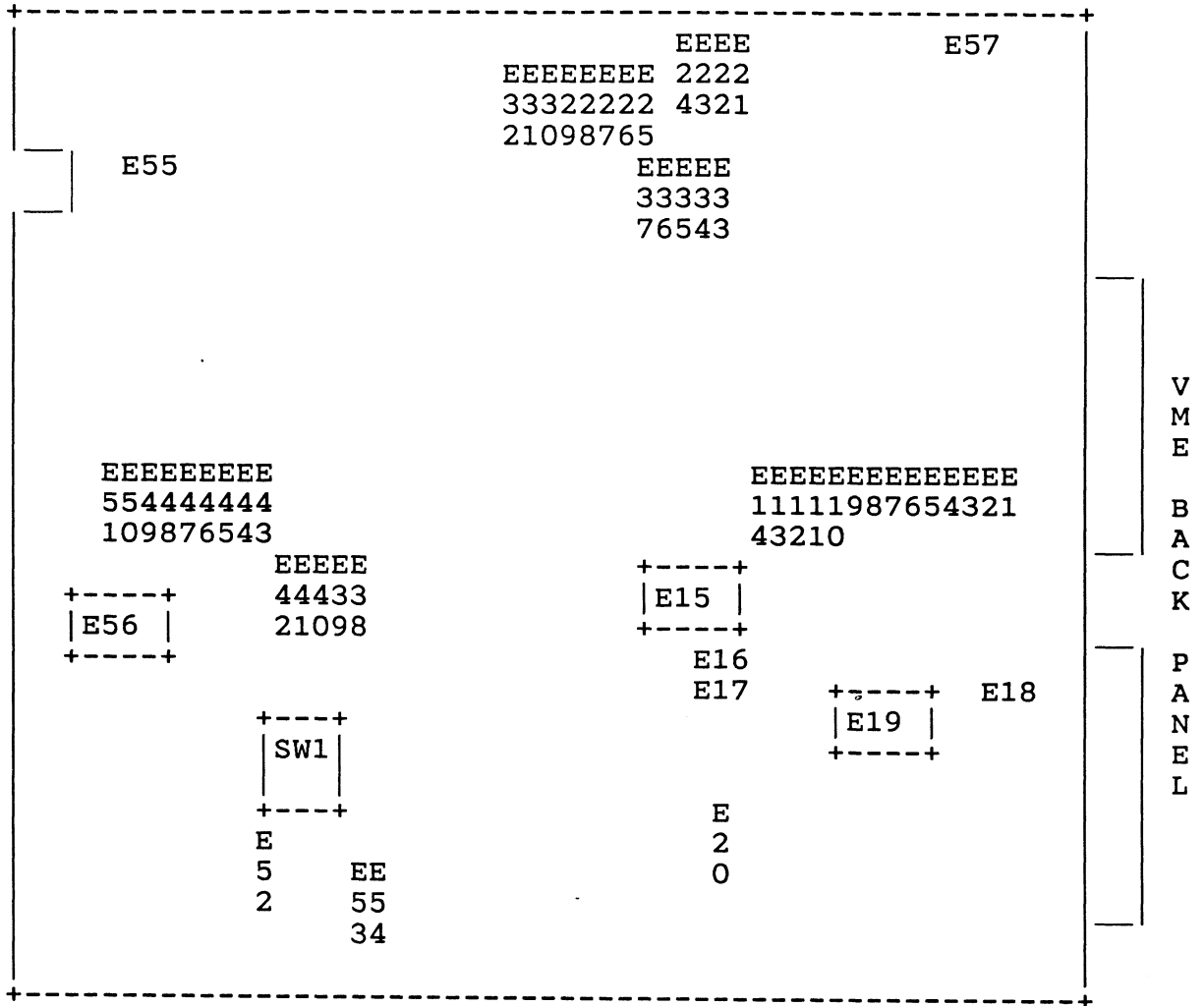
JUMPER	PIN	FUNCTION	syac(0)	syac(0)
E2	1-2	A31		IN
	3-4	A30		OUT
	5-6	A29		OUT
	7-8	A28		IN
	9-10	A27		IN
	11-12	A26		IN
	13-14	A25		IN
	15-16	A24		IN
E3	1-2	INTERUPT REQUEST		OUT
	3-4	THESE JUMPERS		OUT
	5-6	OPERATE IN		OUT
	7-8	CONJUNCTION WITH		IN
	9-10	E21, E22, AND		OUT
	11-12	E23		OUT
13-14			OUT	
E4	2-3	BG 0 PRIMARY JUMPER		IN
E5	2-3	BG 1 PRIMARY JUMPER		IN
E6	2-3	BG 2 PRIMARY JUMPER		IN
E7	1-2	BG 3 PRIMARY JUMPER		IN
	3-4			IN
E8		BUS REQUEST 0		OUT
E9		BUS REQUEST 1		OUT
E10		BUS REQUEST 2		OUT
E11		BUS REQUEST 3		IN
E12		EXTENDED ADDRESSING		OUT
E13		EXTENDED ADDRESSING		OUT
E14		DPRAM IN SUPER SP.		IN

JUMPER	PIN	FUNCTION	syac(0)	syac(1)
E15	1-2	INTER. VEC BIT D0	OUT	IN
	3-4	D1		OUT
	5-6	D2		OUT
	7-8	D3		OUT
	9-10	D4		OUT
	11-12	D5		IN
	13-14	D6		IN
	15-16	D7		OUT
E16	2-3	27256 EPROMS		IN
E17	1-2	IN=SPECIFY BIT A13		IN=
	3-4	A12		IN=
	5-6	A11		IN=
	7-8	A10		IN=
	9-10	A9		IN=
	11-12	A8		IN=
	13-14	UNUSED		OUT
	15-16	UNUSED		OUT
E18		IN=SPECIFY BIT A15		IN
E19		DPRAM IN PROG SPACE		IN
E20		DPRAM IN DATA SPACE		IN
E21		ACKNOWLEDGEMENT IN CONJUNCTION WITH E3.		OUT
E22				IN
E23				IN
E24		IN=SPECIFY BIT A14		IN
E25		IN= 12.5 ms RTC		OUT
E26		IN= 25.0 ms RTC		OUT
E27		IN= 50.0 ms RTC		IN
E28		IN= 100.0 ms RTC		OUT

THESE JUMPERS ARE NOT VALID WHEN E12 IS NOT INSTALLED. THEY ARE JUMPERED TO THESE POSITIONS FOR CONSISTENCY ONLY.

JUMPER	PIN	FUNCTION	syac(0)	syac(1)
E29		IN=ALLOWS SYSFAIL		OUT
E30	2-3	DCD TERMINATION		IN
SW1	1	RESERVED		OFF
	2	SELF TEST READ/RITE		ON
	3	SELF TEST		OFF
	4	SELF TEST		OFF
	5	SELF TEST		OFF
	6	RESERVED		OFF
	7	LOG WORD TRANSFER		OFF
	8	RESERVED		OFF

5.2.4 Host Adapter Controller 005-34207 (118-4849) syac(X)



JUMPERS MARKED =OUT= OR =IN= SIGNIFY NON FACTORY INSTALLED POSITIONS

JUMPER	PIN	FUNCTION	syac(0)	syac(1)	syac(2)	syac(3)	syac(4)
E1		IN= EXTENDED ADD.				IN	
E2		IN= SUPERVISOR				IN	
E3		DPRAM IN PROG. SP.				OUT	





JUMPER	PIN	FUNCTION	syac(0)	syac(1)	syac(2)	syac(3)	syac(4)
E5		DPRAM PROG OR DATA					IN
E6		DPRAM IN USER SPACE					OUT
E7		INT REQ 7					OUT
E8		INT REQ 6					OUT
E9		INT REQ 5					OUT
E10		INT REQ 4					IN
E11		INT REQ 3					OUT
E12		INT REQ 2					OUT
E13		INT REQ 1					OUT
E14		FACTORY RESERVED					IN
E15	1-2	IN= SPECIFY A23					IN
	3-4		A22				IN
	5-6		A21				IN
	7-8		A20				IN
	9-10	A19	IN	IN	IN	IN	=OUT=
	11-12	A18	IN	IN	=OUT=	=OUT=	IN
13-14	A17	IN	=OUT=	IN	=OUT=	IN	
15-16	A16					IN	
E16		A15					IN
E17		A14					IN
E18		EXTENDED ADDRESSING					IN
E19	1-2	IN= SPECIFY A31					IN
	3-4		A30				OUT
	5-6		A29				OUT
	7-8		A28				IN
	9-10		A27				IN
	11-12		A26				IN

| 13-14 |  
| 15-16 |

A25  
A24

IN  
IN

=====  
JRM NO.10-05-030A

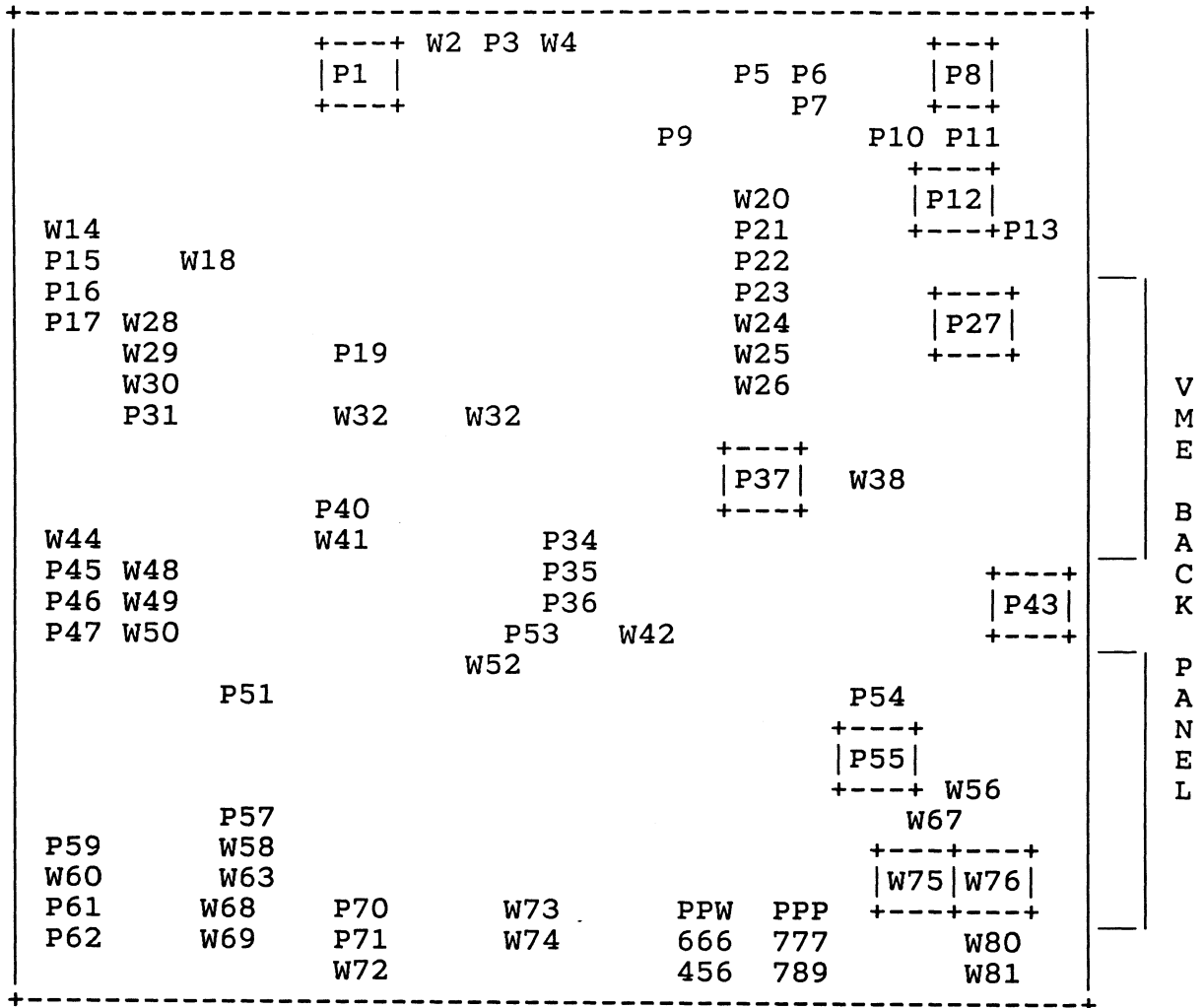
JUMPER	PIN	FUNCTION	syac(0)	syac(1)	syac(2)	syac(3)	syac(4)
E20		FACTORY RESERVED					OUT
E21	2-3	BUS GRANT 0					IN
E22	2-3	BUS GRANT 1					IN
E23	2-3	BUS GRANT 2					IN
E24	1-2 3-4	BUS GRANT 3 SELECTED					IN IN
E25		STATUS/ID BIT D7					OUT
E26		STATUS/ID BIT D6					IN
E27		STATUS/ID BIT D5					IN
E28		STATUS/ID BIT D4					OUT
E29		STATUS/ID BIT D3					OUT
E30		STATUS/ID BIT D2	OUT	OUT	OUT	OUT	=IN=
E31		STATUS/ID BIT D1	OUT	OUT	=IN=	=IN=	OUT
E32		STATUS/ID BIT D0	OUT	=IN=	OUT	=IN=	OUT
E33		BUS REQ LEVEL 3					IN
E34		BUS REQ LEVEL 2					OUT
E35		BUS REQ LEVEL 1					OUT
E36		BUS REQ LEVEL 0					OUT
E37		FACTORY RESERVED					OUT
E38		FACTORY RESERVED					OUT
E39		FACTORY RESERVED					OUT
E40		P/O BG JUMPERING					OUT
E41		P/O BG JUMPERING					IN

E42	P/O BG JUMPERING	IN
E43	RWD RELEASE	OUT

RM NO.10-05-030A

JUMPER	PIN	FUNCTION	syac(0)	syac(1)	syac(2)	syac(3)	syac(4)
E44		3.1 us TIMEOUT					OUT
E45		6.3 us TIMEOUT					OUT
E46		12.5 us TIMEOUT					OUT
E47		25.0 us TIMEOUT					IN
E48		12.5 ms TIMEOUT					OUT
E49		25.0 ms TIMEOUT					OUT
E50		50.0 ms TIMEOUT					IN
E51		100.0 ms TIMEOUT					OUT
E52		IN= ALLOWS SYSFAIL					OUT
E53	1-2	IN= SMALL PROMS					IN
E54	1-2	IN= SMALL PROMS					IN
E55		TERM COAX @ ADAPTER					IN
E56	1-2 3-4 5-6 7-8 9-10 11-12 13-14 15-16	TRANSPORT NODE ADD.					IN IN IN IN IN IN IN IN
E57		BCLR					OUT
SW1	1 2 3 4 5 6 7 8	RESERVED SELF TEST READ/RITE SELF TEST SELF TEST SELF TEST RESERVED LOG WORD TRANSFER RESERVED					ON ON OFF OFF OFF OFF OFF OFF

5.2.5 Sync Controller 005-34206 (118-4846) sdc(X)



INDIVIDUAL PINS FOR EACH JUMPER GROUP ARE NUMBERED AS FOLLOWS:

VERTICAL BLOCK OF PINS	COLUMNS PINS	HORIZONTAL BLOCK OF PINS	ROWS OF PINS
1 2	1	1 3 5 7 9	1 2 3 4
3 4	2	2 4 6 8 10	
5 6	3		
7 8	4		

JUMPERS MARKED =OUT= OR =IN= SIGNIFY NON FACTORY INSTALLED POSITIONS

JUMPER	PIN	FUNCTION	sdcp(0)	sdcp(1)
P1	1-2	OPTION 0		OUT
	3-4	1		OUT
	5-6	2		OUT
	7-8	3		IN
P3	1-2	RESET FROM BUS		IN
P5	1-2	SUPER. SLAVE DECODE		IN
	3-4	FACTORY USE ONLY		IN
P6	2-3	BUS GRANT 0		IN
P7	2-3	BUS GRANT 3		IN
P8	1-2	PGM ONLY SLAVE DEC		OUT
	3-4	DATA ONLY SLAVE DEC		OUT
	5-6	PGM&DATA SLAVE DEC		IN
	7-8	USER SLAVE DECODE		OUT
P9	1-2	TIMEOUT TO LOCAL		IN
P10	1-2	BUS GRANT 2		IN
	3-4	(SELECTED)		IN
P11	2-3	BUS GRANT 1		IN
P12	1-2	BUS REQUEST 3		OUT
	3-4	2		IN
	5-6	1		OUT
	7-8	0		OUT
P13	1-2	BUS RELEASE OPTION		OUT
P15		CHAN A RS-232 GND		IN
P16		CHAN A RC GND		OUT
P17		CHAN A FRAME GND		OUT
P19	1-2	DMA A 19/15		IN
P21		A03 INT LEVEL DEC		IN
P22	1-2	A02 INT LEVEL DEC		OUT

P23	1-2	A01 INT LEVEL DEC	OUT
-----	-----	-------------------	-----

=====

FORM NO.10-05-030A



JUMPER	PIN	FUNCTION	sdcp(0)	sdcp(1)
P27	1-2	INT REQ LEVEL 7 HI		OUT
P27	3-4	6		OUT
P27	5-6	5		OUT
P27	7-8	4		OUT
P27	9-10	3		IN
P27	11-12	2		OUT
P27	13-14	1 LOW		OUT
P31	1-2	CHAN A MULTIDROP EN		OUT
P34	1-2	DMA ADDRESS SEL		IN
	3-4			IN
P35	2-3	A16-27512		IN
P36	2-3	A15-27256		IN
P37	1-2	STD SLAVE ADD A23		OUT
	3-4	A22		IN
	5-6	A21		OUT
	7-8	A20		OUT
	9-10	A19		IN
	11-12	A18		IN
	13-14	A17		IN
	15-16	A16	IN	=OUT=
P40	1-2	CHAN B MULTIDROP		OUT
P43	1-2	STATUS/ID BIT 7		OUT
	3-4	6		IN
	5-6	5		OUT
	7-8	4		IN
	9-10	3		OUT
	11-12	2		OUT
	13-14	1		OUT
	15-16	0		OUT
P45	1-2	CHAN B RS-232 GND		IN
P46	1-2	CHAN B RC GND		OUT
P47	1-2	CHAN B FRAME GND		OUT
P51	1-2	CHAN B CLOCK OPT		IN

JUMPER	PIN	FUNCTION	sdcp(0)	sdcp(1)
P53	1-2	BYTE SWAP		IN
P54	1-2	STD/EXT SLAVE DEC		IN
P55	1-2	EXT SLAVE ADD A31		IN
	3-4	A30		OUT
	5-6	A29		IN
	7-8	A28		OUT
	9-10	A27		IN
	11-12	A26		OUT
	13-14	A25		IN
	15-16	A24		OUT
P57	1-2	CHAN A CLOCK OPT		IN
P59	1-2	CHAN C RS-232 GND		IN
P61	1-2	CHAN C RC GND		OUT
P62	1-2	CHAN C FRAME GND		OUT
P64	1-2	CHAN D CLOCK OPT		IN
P65	1-2	CHAN D MULTIDROP		OUT
P70	1-2	CHAN C CLOCK OPT		IN
P71	1-2	CHAN C MULTIDROP EN		OUT
P77	1-2	CHAN D RS232 GND		IN
P78	1-2	CHAN D RS GND		OUT
P79	1-2	CHAN D FRAM GND		OUT

THE FOLLOWING WIRE JUMPERS ARE SOLDERED IN PLACE.  
THE CONFIGURATION CANNOT BE CHANGED.

JUMPER	PIN	FUNCTION	sdc(0)	sdc(1)
W2	1-2	FACTORY USE ONLY	OUT	
W4	1-2 3-4	FACTORY USE ONLY FACTORY USE ONLY	IN IN	
W14	1-2	CHAN A DCD/DSR SEL	IN	
W18	2-3	CHAN A RXC/TXC SEL	IN	
W20	1-2	FACTORY USE ONLY	OUT	
W24	1-2	FACTORY USE ONLY	OUT	
W25	1-2	FACTORY USE ONLY	IN	
W26	1-2	FACTORY USE ONLY	OUT	
W28	2-3	CHAN A RT/ST REC	IN	
W29	2-3	CHAN A ST/TT REC	IN	
W30	1-2	FACTORY USE ONLY	IN	
W32	1-2	FACTORY USE ONLY	IN	
W33	1-2	FACTORY USE ONLY	IN	
W38	1-2	FACTORY USE ONLY	OUT	
W39	1-2	FACTORY USE ONLY	OUT	
W41	1-2	FACTORY USE ONLY	IN	
W42	1-2 3-4	FACTORY USE ONLY FACTORY USE ONLY	IN IN	
W44	1-2	CHAN B DCD/DSR SEL	IN	
W48	2-3	CHAN B RXC/TXC SEL	IN	
W49	2-3	CHAN B RT/ST REC	IN	
W50	2-3	CHAN B ST/TT REC	IN	

W52	1-3	FACTORY USE ONLY	IN
-----	-----	------------------	----

=====

FORM NO.10-05-030A



W80	1-2	CHAN D DCD/DSR SEL	IN
W81	2-3	CHAN D ST/TT REC	IN

=====  
RM NO.10-05-030A

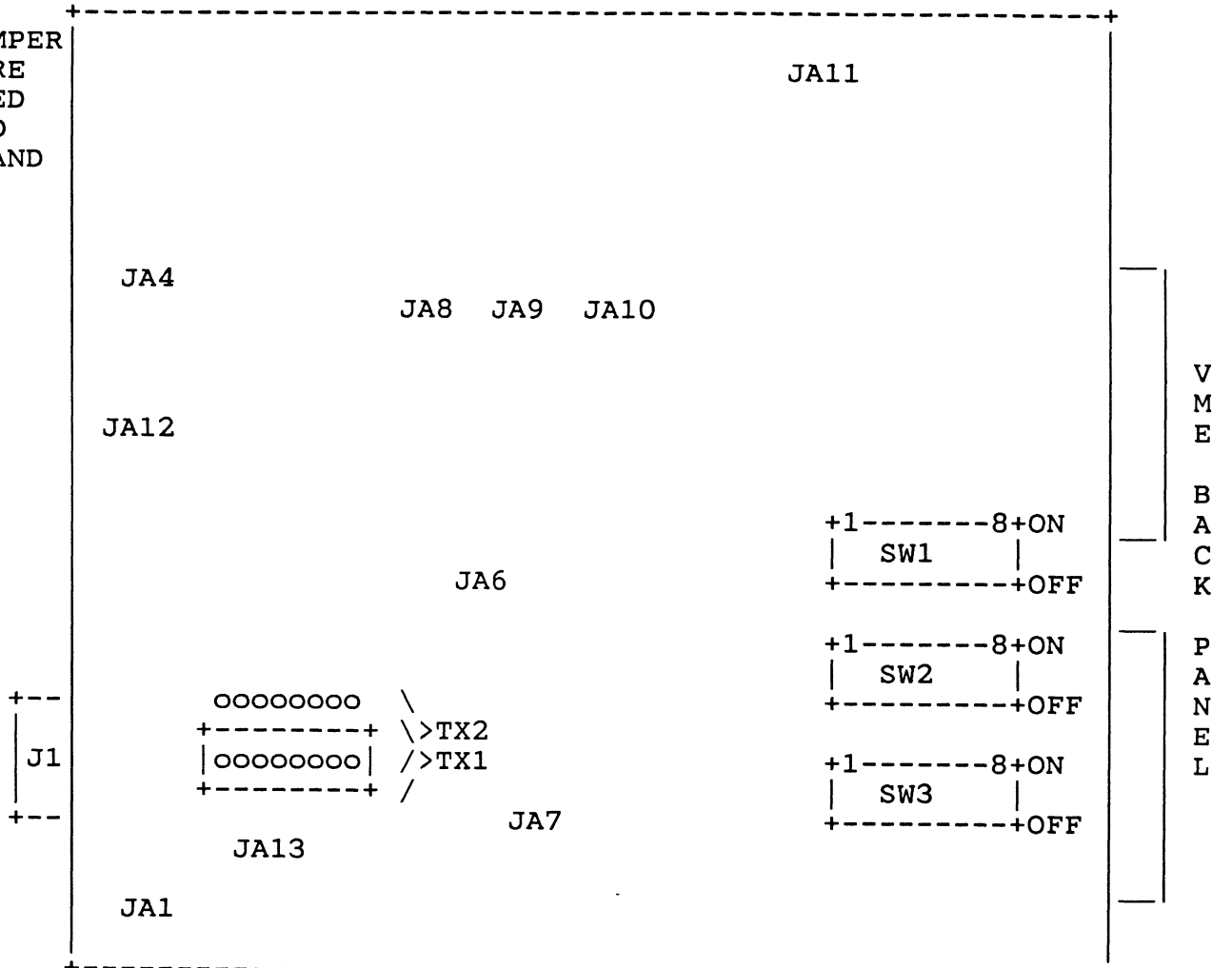
5.2.6 LAN Controller 005-34209 (118-4852) hken(X)

ALL JUMPER  
PINS ARE  
NUMBERED  
LEFT TO  
RIGHT AND  
TOP TO  
BOTTOM.  
EITHER

1 2 3

OR

3  
2  
1



JUMPERS MARKED =OUT= OR =IN= SIGNIFY NON FACTORY INSTALLED POSITIONS

JUMPER	PIN	FUNCTION	hken(0)	hken(1)
SW1	1	BASE ADDRESS A15 A14 A13	ON	
	2		OFF	
	3		ON	
	4	A12	ON	=OFF=
	5	A11	ON	
	6	A10	ON	
	7	A9	ON	

|            | 8 | ADDRESS MODIFIER |            |  
+-----+-----+-----+-----+

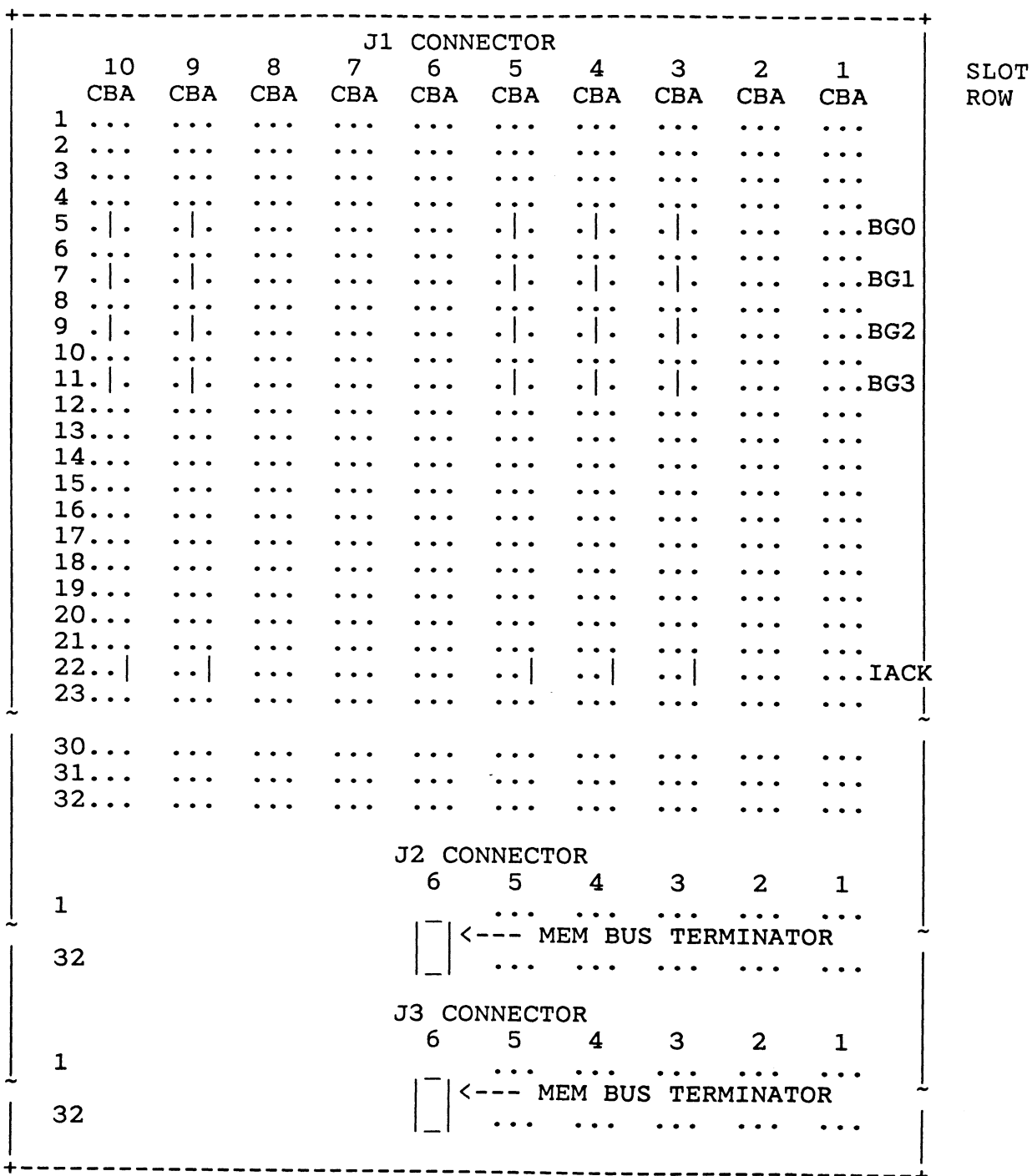
=====

FORM NO.10-05-030A



JUMPER	PIN	FUNCTION	hken(0)	hken(1)	
SW2	1	BASE ADDRESS	A23	OFF	
	2		A22	ON	
	3		A21	ON	
	4		A20	OFF	
	5		A19	ON	=OFF=
	6		A18	ON	
	7	32 BIT		OFF	
	8	24 BIT		OFF	
SW3	1	BASE ADDRESS	A31	ON	
	2		A30	OFF	
	3		A29	ON	
	4		A28	OFF	
	5		A27	ON	
	6		A26	OFF	
	7		A25	ON	
	8		A24	OFF	
JA1	1-2	TRANS POWER @ FRONT	IN		
JA4	1-2	SLOW DTACK	IN		
JA7		TEST POINT	OUT		
JA8	2-3	DISABLE PARITY	IN		
JA9	2-3	TRANS POWER @ FRONT	IN		
JA10	1-2	SYSCLK SUPPLY	=IN=		
JA11		SYSFAIL DISABLED	OUT		
JA12	1-2	PARITY ERRORS	=IN=		
JA13		HALF STEP AUI INTER	OUT		

5.2.7 Back Panel 005-34395 (viewed from rear of chassis)



BUSS GRANT and IACK jumpers must be placed on all unused slots except for slot 10. The above example is for a system configured with a system board, expansion memory board, SCSI controller, ESDI controller, and a Communications board.

=====  
FORM NO.10-05-030A

### 5.2.8 Terminal Configuration

Baud rate 9600  
Data bits 7  
Parity Mark  
Mode ANSI

## 6.0 TEST PROCEDURE

### 6.1 Powerup Testing

1. Power the sytem up.

Single processor systems will print the prompt: SCM>  
Dual processor system will print the prompt: Jp#x/SCM>  
where x is the processor number 0 or 1.

2. At the "SCM>" prompt, enter:

e fff81000 <cr>

3. At the Memory FFF81000 / FFFFFFFxx:

0 <cr><esc>

4. At the "SCM>" prompt, enter:

f <cr>

5. At the View or Change System Configuration, enter:

6 <cr> Change testing parameters

6. At the Select bits to toggle - > prompt, enter:

15 <cr> Prompting mode (Reserved)

7. At the Select bits to toggle - > prompt, enter:

9 <cr> Halt on error

8. At the Select bits to toggle - > prompt, enter:

<cr>

9. At the View or Change System Configuration, enter:

1 <cr>

Change Boot Parameters

=====

FORM NO.10-05-030A

10. At the "Change boot parameters" enter:

1 <cr> Change system boot path

11. The system should print:

System boot path = []

If it doesn't enter: Y <cr> and At:  
Enter new system boot path -> <cr>

12. At the "Do you want to modify the system boot path? [N]" enter:

<cr>

13. At the "Do you want to boot? [N]" enter:

<cr>

14. At the Change boot parameters, enter:

2 <cr> Change diagnostic boot path

The system should print:

Diagnostic boot path = []

If it doesn't enter: Y <cr> and At:  
Enter new diagnostic boot path -> <cr>

15. At the "Do you want to modify the diagnostic boot path? [N]" enter:

<cr>

16. At the "Change boot parameters" enter:

<cr>

17. At the View or Change System Configuration, enter:

<cr> This will leave you at the SCM> prompt

18. Insert a scratch into the tape drive.

19. At the SCM prompt enter:

xdiag 11 12 <cr>

\*\*\* Enter password -> DGFEMODE (cr>

=====

ORIM NO.10-05-030A

20. At the "Select subtest(s) to enable/disable ->" enter:  
  
    <cr>
21. At the "\*\*\* Unit number [U]:" verify  
  
    that U = 4, if it doesn't  
    enter the correct unit before entering a <cr>.
22. At the "\*\*\* Controller Address [0xAAAAAAAA]:" verify  
  
    that the address "AAAAAAAA" = FFFF300, if it doesn't  
    enter the correct address before entering a <cr>.
23. The system will now run the SCSI tape test. About 30 secs.
24. At the "Select subtest(s) to enable/disable ->" enter:  
  
    <cr>
25. At the "\*\*\* Unit number [U]:" prompt, verify  
  
    that U = 0, if it doesn't  
    enter the correct unit before entering a <cr>.
26. At the "\*\*\* Controller Address [0xAAAAAAAA]:" prompt, verify  
  
    that the address "AAAAAAAA" = FFFFEF00, if it doesn't  
    enter the correct address before entering a <cr>.
27. At the "\*\*\* Select device type [Z]:" verify:  
  
    that the device Z = 1, if it doesn't  
    enter the correct device before entering a <cr>.
28. The system will now run the ESDI disk test. About 30 secs.
29. At the "SCM>" prompt, enter:  
  
    f <cr>
30. At the View or Change System Configuration, enter:  
  
    6 <cr>                   Change testing parameters



31. At the Select bits to toggle - > prompt, enter:  
15 <cr>
32. At the Select bits to toggle - > prompt, enter:  
<cr>
33. At the View or Change System Configuration, enter:  
<cr>
34. At the SCM> prompt, enter:  
xdiag 1 <cr> to execute the extended powerup diags  
(runtime is approx. = 4.5 minutes)
35. Verify that the tests run correctly.
36. On dual processor system change to processor 1 by entering:  
a 1 <cr>  
xdiag 1  
a 0 <cr>

## 6.2 RBOS Testing

1. At the SCM prompt enter:

b usr:stand/diags

2. Enter <cr> after the disclosure banner.

3. Verify that controllers found match the Sales Order \*\*\*\*

4. At the Press New Line to proceed, enter:

<cr>

5. At the Run instruction caches prompt enter:

<cr>

6. At the Run data caches prompt enter:

<cr>

7. At the correct time prompt....., enter:

CTRL P

8. At the Enter password:, enter:

DGREMOTEFEE <cr> \*\*\* No errors allowed \*\*\*

9. At the correct time prompt....., enter:

<cr> if time is correct  
enter n <cr> and correct the time if it  
is incorrect

10. The system will size for peripherals. Verify that all peripherals are sized, then enter:

<cr>

19. After 2 hours block the tape tests.

= =====  
FORM NO.10-05-030A

11. At the "MAIN MENU" enter:

2 <cr> System exerciser      \*\*\* If selection 2 is not  
                                 \*\*\* System exerciser you entered  
                                 \*\*\* the Password incorrectly.  
                                 \*\*\* Reset the system and repeat  
                                 \*\*\* the previous steps.      s

12. At the "System Exerciser Menu" enter:

4 <cr> Test Specific Environment Setup

13. Enter <cr> for all test except---> ESDI disk units 1 and 2

Enter "P" for the ESDI disk units 1 and 2.

14. At the "Press New Line to return to the previous menu" enter:

<cr>

15. At the "System Exerciser Menu" enter:

1 <cr>

16. At the "Press New Line to proceed" enter:

<cr>

17. Enter <cr> for all prompts except:

"Destructive testing (NO, YES) [NO]:" enter: y<cr>

"Are you sure you want to do this (NO,YES) [NO]:" enter: y<cr>

18. On systems that are configured with a LAN board check the LAN address using the following steps:

1. Enter "1" Detailed Status Report
2. At the "Enter Test ID of the Test to Report on" enter the LAN test ID.
3. Verify that the LAN address is 00-00-77-00-xx-xx for all Lan boards present in the system.
4. Boards that do not have this LAN Address MUST BE REJECTED!! (UDD tag should state "LAN ADDRESS NOT SET" along with the LAN address that was printed.)

20. After 100 hours stop testing by entering CNTRL-D

\*\*\*\*\* Burn time is 100 hours \*\*\*\*\*  
For all external systems

21. At the "Press New Line to Return to the System Exerciser Menu"  
enter

<cr>

22. Enter 8 <cr> to return to main menu

23. Enter 5 <cr> to exit.

24. Remove the scratch tape (\$19 each)

### 6.3 UNIX Testing

1. At the "SCM>" enter:

b dgux.starter <cr>

2. At the "Device name? enter:

duart() <cr>  
cird() <cr>  
<cr>

3. Examine the Ficle and determine if the customer ordered  
any of the following DGUX software Model Numbers:

P001AHU1CA, Q001AHU1CA, Q001APU1CA,  
Q001AQU1CA, Q001ARU1CA, Q001ASU1CA

If not; enter the following command:

rm /dgux.starter      Note: After entering this command DGUX  
will no longer boot. RBOS will  
still be bootable.

4. At the "#" enter:

sync <cr>  
halt -q <cr>

## 7.0 PASS/FAIL/RETEST REQUIREMENTS

### 7.1 Allowable errors

#### 1. CPU board

- a. Powerup Selftest - Duart test on processor JP#1.

#### 2. SCSI

- a. SCSI disk test: When a target gets a "media changed or SCSI bus reset error", it is reported as a soft error and a data compare error will follow.
- b. SCSI tape test: When running the Positioning subtest an "I/O timeout" error may be reported when the tape is positioning backwards.
- c. SCSI tape test: An "Invalid error condition" error may be reported when the media is removed and re-inserted. What should be reported is "Media changed or SCSI bus reset." The error will also show up in the level 2 status report as a "data compare error." This is a software problem.

#### 3. ESDI and SCSI Disks

- a. Soft errors: No more than 10 errors in  $10^{11}$  bits read. This is roughly equivalent to:

1 soft error in 12,500,000 KBYTES READ PER DISK

- b. Hard errors: No more than 10 errors in  $10^{13}$  bits read. This is roughly equivalent to:

1 HARD error in 1,250,000,000 KBYTES READ PER DISK

- c. Seek errors: No more than 10 errors in  $10^7$  seeks.

None allowed at present time.

#### 4. HOST ADAPTERS and ASYNC boards

- a. Soft errors: No more than 1/hour/board

+-----+  
| REJECT THE DRIVE |  
+-----+

+-----+  
| CONTINUE NORMAL TESTING |  
+-----+

=====

FORM NO.10-05-030A

7.2 RETEST REQUIREMENTS

The following is the minimum retest requirements for TOPGUN systems

	+-----+   TEST TO BE REPERFORMED   +-----+				
	H I P O T	X D I A G	B U R N I N	3 0 M I N S Y S X	2 H R S S Y S X
+-----+   UNIT REPLACED					
+-----+   POWER SUPPLY	X		X		
+-----+   CPU/MEMORY BOARD		X	X		
+-----+   ASYNC/SYNC/LAN		X	X		
+-----+   PERIPHERAL CONTROLLERS		X	X		
+-----+   TAPE DRIVE		X			X
+-----+   FAN MODULE	X			X	
+-----+   CABLE HARNESS AC/DC POWER	X			X	
+-----+   CABLE HARNESS SIGNAL					X
+-----+   *LOGIC ECO		X			X
+-----+   **RECONFIGURATION		X			X

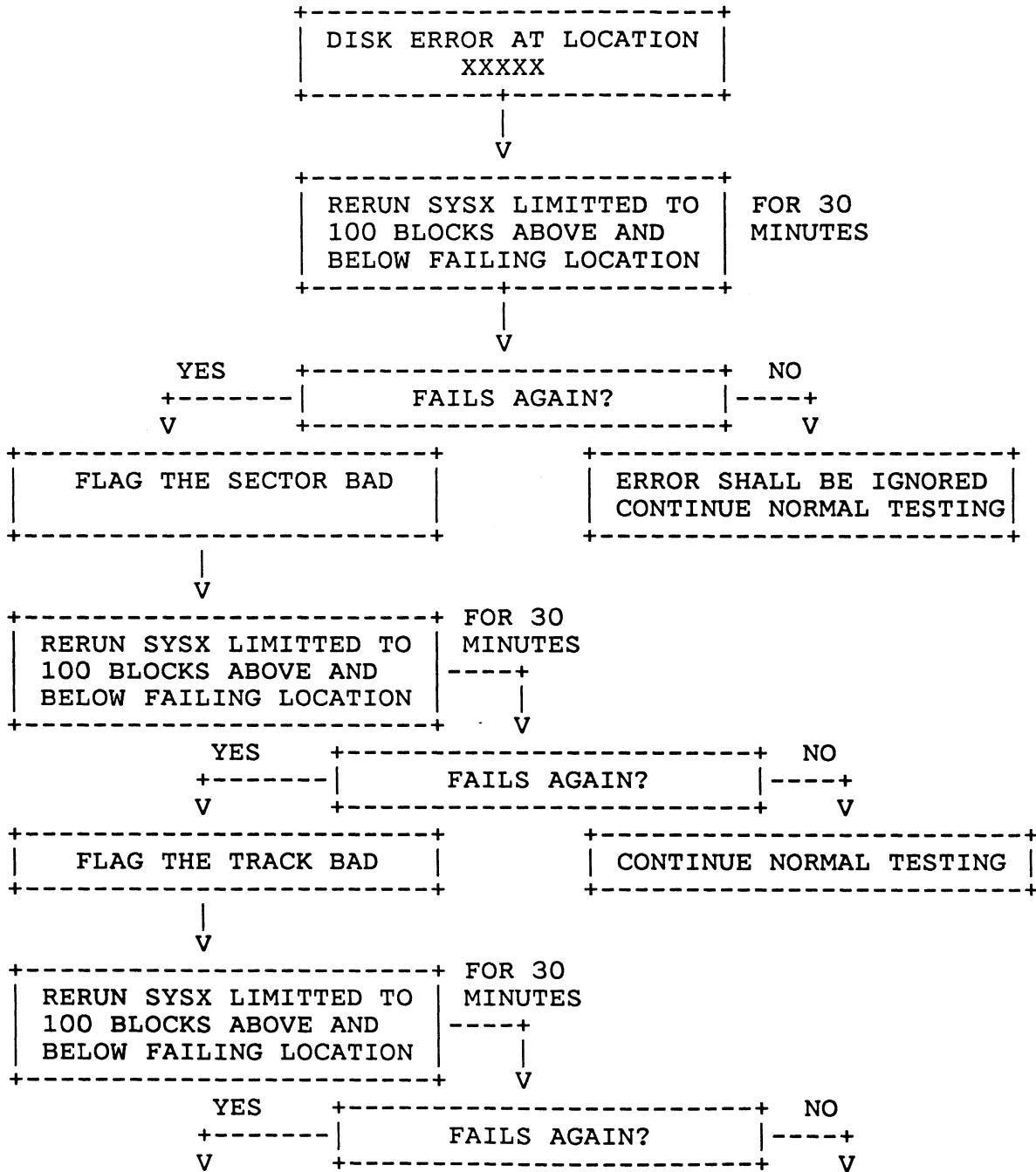
\* ECO TO ANY LOGIC BOARD WHERE THE BOARD IS REMOVED, REWORKED, AND REINSTALLED INTO THE SAME SYSTEM FROM WHICH IT WAS REMOVED.

\*\* ALL SYSTEMS THAT ARE RECONFIGURED USING PREVIOUSLY BURNED IN PARTS. IE USING A BURNED IN CPU FROM ONE SYSTEM IN ANOTHER SYSTEM MUST COMPLETE THE RETEST SPECIFIED.



7.3 DISK VERIFICATION

The following flow chart shall be used to verify any and all hard and soft disk errors that violate the error spec.



*Report to the user*

*Continue with next  
Testing*

Failing FRU:

- 00 - Not Applicable
- 01 - System Board
- 02 - Memory Module 0
- 03 - Memory Module 1
- 04 - Memory Module 2
- 05 - Memory Module 3
- 06 - Memory Module 4
- 07 - Memory Module 5
- 08 - Memory Module 6
- 09 - Controller
- 0A - SCSI Fuse
- 0B - Media
- 0C - Cable
- 0D - Drive (Tape or Disk)
- 0E - Transceiver
- 0F - Target Node
- 10 - Power Supply
- 11 - Printer
- 12 - Battery

Failing Test:

- 00 - Not Applicable
- 01 - Memory Random Test
- 02 - Memory Retention Test
- 03 - CPU Test
- 04 - Multiple CPU Test
- 05 - Parallel Printer Test
- 06 - Duart Channel A Test
- 07 - Duart Channel B Test
- 08 - Clock
- 09 - Lan Internal Loopback Test
- 0A - Disk Test
- 0B - Tape Test
- 0C - Sync Test
- 0D - Async Test

Failing Controller:

00 - Not Applicable  
01 - ESDI Controller @ffffef00  
02 - ESDI Controller @fffff100  
03 - SMD Controller @ffffef00  
04 - SMD Controller @fffff100  
05 - SCSI Controller @fffff300  
06 - SCSI Controller @fffff500  
07 - LAN Controller @ffff4000  
08 - LAN Controller @ffff5000  
09 - Host Adaptor Controller @60000000  
0A - Host Adaptor Controller @60020000  
0B - Host Adaptor Controller @60040000  
0C - Host Adaptor Controller @60060000  
0D - 16-line MUX Controller @60000000  
0E - 16-line MUX Controller @60020000  
0F - 16-line MUX Controller @60040000  
10 - 16-line MUX Controller @60060000  
11 - Sync Controller @55b00000  
12 - Sync Controller @55b10000  
13 - SCSI Controller  
14 - LAN Controller  
15 - Duart Controller  
16 - CPU 0 (Primary CPU)  
17 - CPU 1  
18 - CPU 2  
19 - CPU 3

Failing Target:

For SCSI, ESDI, and SMD Controllers:

eeee = Unit Number

NOTE: A unit number of 7 means controller took failure.

For 16-Line MUX:

eeee = Port Number

NOTE: A port number of FFFF indicates controller took failure.

For Host Adaptor:

eeee is redefined as xxyy where

xx = Cluster Number

yy = Port Number on that Cluster

NOTE: A cluster/port number of FFFF indicates  
controller took failure.

=====

FORM NO.10-05-030A

For Duart Controller:

eeee = Channel Number

For all other controllers this field is not applicable and  
eeee will be set to 0000.

Errorcode:

0000 - Invalid Error Condition  
0001 - Invalid command  
0002 - Bad unit number specification  
0003 - Bad unit type for this command  
0004 - Drive not configured  
0005 - Bad logical block number specified  
0006 - Bad number of blocks specified  
0007 - Bad track starting block  
0008 - Bad number of block for track-wide operation  
0009 - Reserved field not zero  
000a - Bad number of scatter/gather headers specified  
000b - Bad length of scatter/gather table  
000c - Command list stopped  
000d - Bad command list size field  
000e - Bad command list number to start/stop  
000f - List state wrong for start/stop command  
0010 - VME (software) bus memory timeout  
0011 - VME (software)Bus Error (reported by control chip)  
0012 - Drive won't select or not present(SCSI sel)  
0013 - SCSI disconnect timeout  
0014 - Drive reported parity error  
0015 - Unexpected disconnect  
0016 - Undefined or uninterpretable SCSI error  
0017 - Check condition bit set  
0018 - Bad gap size found during format  
0019 - Command complete timeout  
001a - Floppy disk unit not ready  
001b - Seek fault on floppy drive  
001c - CRC error in ID  
001d - Write fault on drive  
001e - Data CRC error  
001f - Sector not found  
0020 - Floppy disk data lost  
0021 - Data underrun during operation  
0022 - No sense  
0023 - Recovered error  
0024 - Medium error  
0025 - Hardware error

- 0026 - Illegal request
- 0027 - Unit attention
- 0028 - Data protect, or incorrect media type
- 0029 - Blank check

=====

FORM NO.10-05-030A

002a - Vender unique  
002b - Copy aborted  
002c - Aborted command  
002d - Equal  
002e - Volume overflow  
002f - Data compare error  
0031 - Drive not ready  
0032 - Mass storage device busy  
0033 - Drive reported seek fault  
0034 - Write fault detected  
0035 - Sector too short / overrun error  
0036 - Data ECC error, no correction done  
0037 - ID sync error, sector not found  
0038 - ID CRC error  
0039 - No data synchronization  
003a - Seek timeout  
003b - Data operation timeout  
003c - Misseek / direct access to alt.  
003d - Error reading sector ID  
003e - Direct access to bad track or sector  
003f - ECC correction performed  
0040 - ECC correction failed  
0041 - Sectors per track do not match disk  
0042 - Sectors per track bad or greater than physical size  
0043 - Field too long (preamble gap)  
0044 - Bad parameter in configure command  
0045 - Attempt to initialize control group 0  
0046 - Bad source in defect mapping command  
0047 - Bad destination in defect mapping command  
0048 - No spares left on track  
0049 - Bad recovery field in defect mapping command  
004a - Reservation conflict  
004b - End of media encountered  
004c - Filemark encountered  
004d - Illegal length indicator  
004e - Cache memory diagnostic error  
004f - Static RAM error  
0050 - PROM Checksum error  
0051 - Undefined diagnostic specified  
0052 - Too many media defects found  
0053 - Media defects found  
0054 - I/O timeout  
0055 - Intentional SCSI bus reset  
0056 - Hard bus error during disconnect  
0057 - Unexpected SCSI bus reset  
0058 - Unexpected SCSI bus free  
0059 - Memory parity error  
005A - SCSI phase mismatch

- 005B - Media change (or device reset)
- 005C - Command not completed
- 005d - Request sense failure
- 005e - Memory transfer alignment error

=====

F. I NO.10-05-030A



005f - Bad Surface specified for Read Defect Map  
0060 - ESDI bit send timeout without attention  
0061 - ESDI attention won't clear  
0062 - ESDI drive-controller interface fault  
0063 - ESDI drive reported invalid command  
0064 - ESDI write gate with track offset (firmware error)  
0065 - Drive reported power on reset  
0066 - Drive reported spindle moter stopped  
0067 - Drive write protected  
0068 - Bytes per sector bad or greater than physical  
0069 - Not ESDI drive, cannot use  
006a - Drive cannot set requested physical sectors per track  
006b - Floppy disk option not installed  
006c - Scatter/gather descriptor block read error  
006d - Bad byte seen by SCSI controller chip  
006e - Error in synchronous transfer negotiation  
006f - Bus hang during programmed I/O  
0070 - Device not open  
0071 - Framing Error  
0072 - Silo Overflow  
0073 - CRC Error  
0074 - Buffer Error - No Receive Buffer While Chaining  
0075 - Missed Packet - No Receive Buffer  
0076 - Memory Error  
0077 - Babble Error - Transmit Packet too Large  
0078 - Collision Error  
0079 - Transmit Failure - Excessive Collisions  
007A - Silo Underflow  
007B - Transmit Failure - Loss of Carrier  
007C - Transmit Buffer Error  
007D - Late Collision  
007E - Lan Reset  
007F - Out of paper  
0080 - Offline  
0081 - Busy  
0082 - Character not requested  
0083 - Printer not attached  
0084 - IOCB error...IOCB structure invalid  
0085 - Non-IOCB nonfatal error  
0086 - Nonfatal application error  
0087 - FATAL system error  
0088 - IOCB error...Requested operation invalid  
0089 - HPS not jumpered to execute (or failure to request)  
      host portion of self-test  
008A - HPS host self-test start/error/completion code timeout  
008B - HPS host portion of self-test detected error  
008C - Cannot get HPS system address table  
008D - Cannot get HPS initial on-board config table

- 008E - Cannot get HPS initial on-board TRACER table
- 008F - Attempt to overwrite existing HPS config table
- 0090 - Write error when attempting to download O/S
- 0091 - HPS VRTX table write failed

=====

FORM NO.10-05-030A

0092 - HPS TRACER table write failed  
0093 - Checksum error during HPS O/S load  
0094 - Port open failed due to selftest failure  
0095 - Undefined error code  
0096 - ROM checksum error  
0097 - Stack data test error  
0098 - Stack address test error  
0099 - Stack checkerboard test error  
009A - Zero stack test error  
009B - Stack addressing conflict error  
009C - Watchdog timeout test error  
009D - Real-time clock interrupt error (no RTC present)  
009E - Real-time clock interrupt error (bad clock pulse width)  
009F - Undefined error code  
00A0 - DRAM address test error  
00A1 - DRAM checkerboard test error  
00A2 - Zero DRAM test error  
00A3 - Serial port 00 failed DUART test  
00A4 - Serial port 01 failed DUART test  
00A5 - Serial port 02 failed DUART test  
00A6 - Serial port 03 failed DUART test  
00A7 - Serial port 04 failed DUART test  
00A8 - Serial port 05 failed DUART test  
00A9 - Serial port 06 failed DUART test  
00AA - Serial port 07 failed DUART test  
00AB - Serial port 08 failed DUART test  
00AC - Serial port 09 failed DUART test  
00AD - Serial port 10 failed DUART test  
00AE - Serial port 11 failed DUART test  
00AF - Serial port 12 failed DUART test  
00B0 - Serial port 13 failed DUART test  
00B1 - Serial port 14 failed DUART test  
00B2 - Serial port 15 failed DUART test  
00B3 - OctART/Network interrupt error  
00B4 - Watchdog timeout error  
00B5 - Watchdog timeout occurred too early  
00B6 - ALL ports failed OctART test  
00B7 - DPRAM address test error  
00B8 - DPRAM checkerboard test error  
00B9 - DPRAM zero test error  
00BA - Host to HPS I/F test: data wrap test error  
00BB - Host to HPS I/F test: flag byte interrupt test error  
00BC - Host to HPS I/F test: host interrupt bit will not reset  
00BD - Host to HPS I/F test: data returned <> data sent  
00BE - Host to HPS I/F test: host not ready for more data error  
00BF - RAM parity error..Bank 0  
00C0 - RAM parity error..Bank 1  
00C1 - RAM parity error..Bank 0 & 1

- 00C2 - RAM parity error..Bank 2
- 00C3 - RAM parity error..Bank 0 & 2
- 00C4 - RAM parity error..Bank 1 & 2
- 00C5 - RAM parity error..Bank 0, 1, & 2

=====

FILE NO.10-05-030A

00C6 - RAM parity error..Bank 3  
00C7 - RAM parity error..Bank 0 & 3  
00C8 - RAM parity error..Bank 1 & 3  
00C9 - RAM parity error..Bank 0, 1, & 3  
00CA - RAM parity error..Bank 2 & 3  
00CB - RAM parity error..Bank 0, 2, & 3  
00CC - RAM parity error..Bank 1, 2, & 3  
00CD - RAM parity error..Bank 0, 1, 2, & 3  
00CE - Centronics option data loop error  
00CF - HPS local bus exception error  
00D0 - HPS local address exception error  
00D1 - HPS illegal instruction exception error  
00D2 - HPS interrupt exception error  
00D3 - HPS trap exception error  
00D4 - HPS unknown/other exception error  
00D5 - One or more serial ports failed DUART test  
00D6 - Break detected  
00D7 - Parity error  
00D8 - Framing error  
00D9 - Data Overrun  
00DA - HPS Network RAM data test error  
00DB - HPS Network RAM location addressability test error  
00DC - HPS Network RAM checkerboard test error  
00DD - HPS Network RAM zero test error  
00DE - HPS COM 9026 test: status register incorrect value  
00DF - HPS COM 9026 test: network ID invalid (cannot = 0)  
00E0 - HPS COM 9026 test: network interrupt test error  
00E1 - COM 9026 interrupt occurred when interrupts disabled  
00E2 - COM 9026 'POR bit' is not set during interrupt  
00E3 - HPS Dynamic RAM parity error  
00E4 - Cannot set HPS address modifier level  
00E5 - DCP Dynamic RAM address lines test fails  
00E6 - DCP Dynamic RAM data and data line test fails  
00E7 - DCP Unspecified Error Code  
00E8 - DCP Unspecified Error Code  
00E9 - DCP Dual Port RAM address lines test fails  
00EA - DCP Dual Port RAM data and data lines test fails  
00EB - DCP DMA controller test fails (DMA1)  
00EC - DCP DMA controller test fails (DMA2)  
00ED - DCP Prom Checksum Failure  
00EE - DCP 8255 data and data bus test fails  
00EF - DCP Serial I/O failed to interrupt CPU  
00F0 - DCP Serial I/O failed DMA Test  
00F1 - DCP Unspecified Error Code  
00F2 - DCP 8255 BUSERR input is set  
00F3 - DCP 8255 NMIINT input is set  
00F4 - DCP Selftest Timeout  
00F5 - HPS port status error

00F6 - Size Discrepancy error  
00F7 - Clock failure  
00F8 - Branch test failed  
00F9 - BCND instruction with r0 failed

=====  
F . NO.10-05-030A

00FA - CMP instruction with r0 = 0 failed  
00FB - ADDU or SUBU instruction failed  
00FC - BCDN equal to 0 with r1 failed  
00FD - Error detected in the Branch test  
00FE - Instruction combination OR/CMP/BBO failed  
00FF - Error detected in the BSR test  
0100 - Branch on bit set (bb1) failed  
0101 - Branch on bit clear (bb0) failed  
0102 - Error detected in the JMP test  
0103 - Error detected in the OR test  
0104 - Error detected in the AND test  
0105 - Error detected in the ROT test  
0106 - Error detected in the ADDU test  
0107 - Error detected in the ADD test  
0108 - Error detected in the SUBU test  
0109 - Error detected in the SUB test  
010A - Error detected in the MASK test  
010B - Error detected in the XOR test  
010C - Error detected in the CMP test  
010D - Error detected in the FF1 test  
010E - Error detected in the FFO test  
010F - Error detected in the DIVU test  
0110 - Error detected in the DIV test  
0111 - Error detected in the MUL test  
0112 - Error detected in the CLR test  
0113 - Error detected in the EXTU test  
0114 - Error detected in the EXT test  
0115 - Error detected in the SET test  
0116 - Error detected in the MAK test  
0117 - Error detected in the LD test  
0118 - Error detected in the ST test  
0119 - Error detected in the LDA test  
011A - Error detected in the XMEM test  
011B - Error detected in the FLT test  
011C - Error detected in the INT test  
011D - Error detected in the NINT test  
011E - Error detected in the TRUN test  
011F - Error detected in the FCMP test  
0120 - Error detected in the FADD test  
0121 - Error detected in the FSUB test  
0122 - Error detected in the FMUL test  
0123 - Error detected in the FDIV test  
0124 - Error detected in the FLDCR test  
0125 - Error detected in the FSTCR test  
0126 - Error detected in the FXCR test  
0127 - Error detected in the LDCR test  
0128 - Error detected in the STCR test  
0129 - Error detected in the XCR test

012A - Error detected in the RTE test  
012B - Error detected in the TBl test  
012C - Error detected in the TBO test  
012D - Error detected in the TBND test

=====

FORM NO.10-05-030A



012E - Error detected in the TCND test  
0137 - Error detected in XMEMIM test  
0138 - Error detected in XMEMRG test  
0139 - Error detected in XMEMBU test  
013A - Error detected in EXCEPTION PROCESSING test  
0147 - Remote processor Branch test failed  
0148 - Remote processor BCND instruction with r0 failed  
0149 - Remote processor CMP instruction with r0 =0 failed  
014A - Remote processor ADDU or SUBU instruction failed  
014B - Remote processor BCDN equal to 0 with r1 failed  
014C - Remote processor error running the Branch test  
014D - Remote processor combination OR/CMP/BBO failed  
014E - Remote processor error running the BSR test  
014F - Remote processor Branch on bit set (bb1) failed  
0150 - Remote processor Branch on bit clear (bb0) failed  
0151 - Remote processor error running the JMP test  
0152 - Remote processor error running the OR test  
0153 - Remote processor error running the AND test  
0154 - Remote processor error running the ROT test  
0155 - Remote processor error running the ADDU test  
0156 - Remote processor error running the ADD test  
0157 - Remote processor error running the SUBU test  
0158 - Remote processor error running the SUB test  
0159 - Remote processor error running the MASK test  
015A - Remote processor error running the XOR test  
015B - Remote processor error running the CMP test  
015C - Remote processor error running the FF1 test  
015D - Remote processor error running the FFO test  
015E - Remote processor error running the DIVU test  
015F - Remote processor error running the DIV test  
0160 - Remote processor error running the MUL test  
0161 - Remote processor error running the CLR test  
0162 - Remote processor error running the EXTU test  
0163 - Remote processor error running the EXT test  
0164 - Remote processor error running the SET test  
0165 - Remote processor error running the MAK test  
0166 - Remote processor error running the LD test  
0167 - Remote processor error running the ST test  
0168 - Remote processor error running the LDA test  
0169 - Remote processor error running the XMEM test  
016A - Remote processor error running the FLT test  
016B - Remote processor error running the INT test  
016C - Remote processor error running the NINT test  
016D - Remote processor error running the TRUN test  
016E - Remote processor error running the FCMP test  
016F - Remote processor error running the FADD test  
0170 - Remote processor error running the FSUB test  
0171 - Remote processor error running the FMUL test

- 0172 - Remote processor error running the FDIV test
- 0173 - Remote processor error running the FLDCR test
- 0174 - Remote processor error running the FSTCR test
- 0175 - Remote processor error running the FXCR test

= ..=====

FORM NO.10-05-030A

0176 - Remote processor error running the LDCR test  
0177 - Remote processor error running the STCR test  
0178 - Remote processor error running the XCR test  
0179 - Remote processor error running the RTE test  
017A - Remote processor error running the TB1 test  
017B - Remote processor error running the TBO test  
017C - Remote processor error running the TBND test  
017D - Remote processor error running the TCND test  
0187 - No Index/Sector signal (Hardware)  
0188 - No Seek Complete (Hardware)  
0189 - Write Fault (Hardware)  
018a - Drive Not Ready  
018b - Drive Not Selected (Not Ready)  
018c - No Track Zero Found ((Hardware)  
018d - Multiple Drives Selected (Hardware)  
018e - Logical Unit Communication Failure (Hardware)  
018f - Track Following Error  
0196 - ID CRC or ECC error (Hardware/Medium )  
0197 - Unrecovered Read error of data blocks (Medium)  
0198 - No Address Mark found in ID field (Medium)  
0199 - No Address Mark found in Data field (Medium)  
019a - No record found (Medium )  
019b - Seek Positioning Error (Hardware/Medium)  
019c - Data Synchronization Mark error (Medium)  
019d - Recovered Read data with retries (Recovered)  
019e - Recovered Read data with ECC (Recovered)  
019f - Defect List Error (Medium/Recovered)  
01a0 - Parameter Overrun (Hardware)  
01a1 - Synchronous Transfer Error (Medium/Illegal Req.)  
01a2 - Primary Defect List Not Found (Medium/Illegal Req.)  
01a3 - Compare Error (Miscompare)  
01a6 - Invalid Command Operation Code  
01a7 - Illegal Logical Block Address.  
01a8 - Illegal function for device type  
01aa - Illegal field in CDB  
01ab - Invalid LUN  
01ac - Invalid field in Parameter List  
01ad - Write Protected (Hardware)  
01ae - Medium Changed (Unit Attention)  
01af - Power On or Reset Occured (Unit Attention)  
01b0 - Mode Select Paramters Changed  
01b7 - Incompatible Cartridge (Medium)  
01b8 - Medium Format corrupted (Medium)  
01b9 - No Defect Spare Location Available  
01c7 - RAM failure (Hardware)  
01c8 - Data Path diagnostic failure (Hardware)  
01c9 - Power On Diagnostic Failure (Hardware)  
01ca - Message Reject Error (Hardware/Aborted)

- 01cb - Target Internal Controller Error (Hardware/Aborted)
- 01cc - Select/Reselect failed (Hardware/Aborted)
- 01cd - Unsuccessful Soft Reset (Hardware/Aborted)
- 01ce - SCSI Interface Parity Error (Hardware/Aborted)

=====

FORM NO.10-05-030A

0lcf - Initiator Dected Error (Hardware/Aborted)  
0ld0 - Inappropriate/Illegal Message (Hardware/Aborted)  
0ld7 - Memory Corruption Error

Skill List  
(H) Hardware Maintenance

DATE: 10/18/90

Skill Code	Description	Related Models
J0840	5-007251, 9993 8K MEMORY BOARD	
H00841	5-007448 ASYNC INTER/DEBUG OPT	
H00842	5-010083 MBC-1 MICRO BRD. COMP	
H00843	5-007124 MICRO NOVA PWER W/BBU	
H00844	5-014308 8K MEMORY	
H00845	5-014395 MP100 BASED MBC2	
H00846	5-014408 MP100 BASED MBC3	
H00847	5-009659, 13938 COMM CONTR	
H00848	5-009574, 13985 CRC BOARD	
H00849	5-009656 ASYNC MUX	
H00850	5-013987 DIGITAL I/O	
H00851	DIAGNOSTIC SYSTEMS OVERVIEW	
H00852	SHARK	
H00853	E-SHARK	
H00854	5-018322 CONTROLLER PCB (N/E)	
H00855	5-009950 RED/WRITE PCB	
H00856	INSPECTOR TRAINING	
H00857	5-001383 NOVA 1200 16K MEMORY	
H00858	5-001514 NOVA 1200 8K MEMORY	
H00859	5-002184 DATA BUS REPEATER	
H00860	5-003094 NOVA 800 PROCESS UNIT	
H00861	5-003103 NOVA 2 MULTI/DIVIDE	
H00862	5-003110 NOVA 2 FL. POINT #1	
H00863	5-003111 NOVA 800 MEM. MAP PRO	
H00864	5-003235 NOVA 1200 4K MEMORY	
J0865	5-003282 NOVA 1200 MULT/DIVIDE	
J0866	5-003598 NOVA 1200 CEN PROCESS	
H00867	5-003600 NOVA 800 CEN PROC UN1	
H00868	5-003601 NOVA 830 CENT PRO UN2	
H00869	5-003604 NOVA 2 CENT PROC UNIT	
H00870	5-003698 DATA BUS REPEATER	
H00871	5-005243 NOVA 830 CEN PROC UN1	
H00872	5-08141 SERVO CLOCK	
H00873	5-20100 HEAD ANALOG	
H00874	6060/6122 DISK OVERVIEW	
H00875	5-5799 ZEBRA DISK CONTROLLER	
H00876	5-6538 ZEBRA DATA CHANNEL	
H00877	MV ARCHITECTURE	
H00878	ECL CPU1 COMPONENT LEVEL	
H00879	ECL CPU2 COMPONENT LEVEL	
H00880	ECL CPU2 OPTIONS WCS, ERCC CL	
H00881	ECL MMPU1 COMPONENT LEVEL	
H00884	IAC/8 ASYNC (005-21413)	
H00885	IAC/8 1 (005-19504)	
H00886	IAC/16 (005-19506)	
H00887	SYS PCB (005-32258)	
H00888	ASYNC COMM (005-32259)	

Skill List  
(H) Hardware Maintenance

DATE: 10/18/90

Skill Code	Description	Related Models
H00889	FLOPPY TAPE CONTR (005-32260)	
H00890	CPU (005-18619)	
H00891	MCU/IO W/O BMC (005-18625)	
H00900	INTRODUCTION TO RDOS	
H00901	RDOS INTERNALS	
H00902	INTRODUCTION TO AOS/VS	
H00903	AOS INTERNALS	
H00904	SEARCH OPERATION	
H00905	SEARCH INTERNALS	
H00906	DTOS	
H00907	BRANCH OFFICE SPECIALIST (BOS)	
H00908	ADEX	
H00909	CORES ADEX	
H00910	AOS/VS II	
H00912	RDOS/OPERATIONS	
H00913	AOS/OPERATIONS	
H00914	AOS/VS-OPERATIONS	
H00915	ASSEMBLY LANG./RDOS	
H00916	ASSEMBLY LANG./AOS	
H00917	ASSEM. LANG./AOS/VS	
H00918	AOS/VS REV 7.5	
H00919	INTRO TO HARDWARE	
H00920	PC*I NETWORK SPECIALIST	
H00921	GATE	
H00922	PC*I SOFTWARE	
H00923	BLAST	
H00924	PC*I PERSONAL SYSTEMS	
H00925	XAP	
H00926	SNA/IBM	
H00927	RJE80	
H00928	ADVANCED UNIX	
H00929	HASP	
H00930	SOFTWARE INSTALLER PART 1	
H00931	RCX70	
H00932	SOFTWARE INSTALLER PART 2	
H00933	CAM II	
H00934	SOFTWARE INSTALLER PART 3	
H00935	XODIAC	
H00936	CEO DESKTOP COMPOSERS	
H00937	XTS	
H00938	UNIX 4.0	
H00939	RIA	
H00940	UNIX/386_SOFTWARE	
H00941	RDA	
H00942	INTRO TO UNIX FUNDAMENTALS	
H00943	NOVA/ECLIPSE	
H00944	MV/UX	

Skill List  
(H) Hardware Maintenance

DATE: 10/18/90

Skill Code	Description	Related Models
.0945	PC*I TOKEN RING SOFTWARE	
H00946	DG/UX	
H00947	DG/INGRES	
H00948	DUMP TOOL ANALYZE	
H00949	CEO LIGHT	
H00950	MS/DOS	
H00951	CEO TROUBLESHOOTING	
H00952	X.25	
H00953	DG/SNA	
H00954	DG PC COMPATIBLE COMPUTERS	
H00955	PC VENDOR SOFTWARE	
H00956	DG/SDLC	
H00957	SNIFFER LAN ANALYZER	
H00958	INTRO TO WORD PERFECT	
H00959	DG/XDLC	
H00960	USING TCP/IP	
H00961	APILU2	
H00962	Using UUCP	
H00963	LOAD & INSTALL DG/UX	
H00964	DG/SNA-RJE	
H00965	BOURNE SHELL SCRIPTS	
H00966	UNIX Network Management	
H00967	MVS	
H00968	VM	
H00969	VSE	
.0970	CICS	
.0971	CMS	
H00972	DG/3270	
H00973	USING VI EDITOR	
H00974	NETWARE/AViion	
H00975	DIA/DCA	
H00986	TCP/IP (AOS/VS)	
H00990	SED TEXT EDITOR	
H00991	INTRO TO DG COMM SOFTWARE/CAI	
H00994	INTRODUCTION TO CLI	
H00995	INTRODUCTION TO SOFTWARE	
H00998	CLI MACROS	
H00999	CLI MACRO PROGRAMMING	
H01001	CEO INTERNALS	
H01002	CEO WORD PROCESSING	
H01003	CEO-A SYSTEMS APPROACH	
H01004	CEO REV 3.0	
H01005	CEOwrite 2.00	
H01006	CEO MAIL & CALENDAR	
H01010	CEO PRINTING & FILING	
H01014	CEO SPREADSHEET	
H01018	AOS ASSEMBLY LANGUAGE	



Skill List  
(H) Hardware Maintenance

DATE: 10/18/90

Skill Code	Description	Related Models
H01022	PROGRAMMING CONCEPTS	
H01026	ADA	
H01030	KEYBOARD SKILLS	
H01247	5-14270 S140 ERCC	
H01300	005-18457 ADDRESS TRANS_UNIT	
H01302	005-18461 SYSTEM CACHE	
H01304	005-18465 I/O CHANNEL	

\*\*\* END OF REPORT \*\*\*