SECTION XI

Miscellaneous

FACTORS WHICH INCREASE THE MONITOR SIZE
(For a 100L based system)

1.	**JOBS**	4 bytes	Per job.
2.	**JOBALC**	1812 bytes	Per jobname, # of JOBALC lines does matter.
3.	**TRMDEF**	118 bytes	Basic statement line.
	1st .IDV	20 bytes	Plus .IDV size.
	1st .TDV	20 bytes	Plus .TDV size.

Example:
```
TRMDEF TRM1,AM100L=0:9600,TELVDO,100,100,100
TRMDEF TRM2,AM100L=1:9600,TELVDO,100,100,100
```

First line:
```
basic statement.....118 Bytes
Interface driver + 20 ....312 Bytes
Terminal driver + 20 .....774 Bytes
In width size .....100 Bytes
In buffer size .....100 Bytes
Out buffer size (x 2) ....200 Bytes
                          -----------
                           1604 bytes
```

Second line:
```
Basic statement .....118 Bytes
In width .....100 Bytes
In buffer .....100 Bytes
Out buffer (x 2) .....200 Bytes
                          -----------
                            518 Bytes
```

The basic Pseudo trmdef line is 118 bytes plus the buffer sizes.

4.	**DEVTBL**	46 Bytes	For each non-file structured device (i.e. TRM,RES,MEM,/VCR0,TRM1,..)
		150 Bytes	Per first 8" 32mb Priam logical unit.
		290 Bytes	Per first 8" 60mb Priam logical unit.
		188 Bytes	Per first 14" 60mb Priam logical unit.
		1592 Bytes	Per first 8" 70mb Fujitsu logical unit.
		12560 Bytes	Per first 10" 400mb Fujitsu logical unit.
		34 Bytes	For all additional logical units on all drives after the first one defined.
5.	**BITMAP**	110 Bytes	Plus (2 X bitmap size).
6.	**QUEUE**	16 Bytes	Per block (QUEUE 100 = 1600 Bytes).
7.	**SYSTEM**	16 Bytes	Plus the size of the program to be loaded.
8.	**MEMORY**	--	As much as you assign.
9.	**CACHE**	--	As much as you assign.

EXAMPLE

Customer wants to add to add one CRT and one Facit printer
Their system has AM316 for I/O ports and 75k in disk CACHE.
They have 1 port available on the AM316 board and the AM120
is not yet used. Can they do it?

Below are the lines in the .INI file that will increase the memory useage.

JOBS line increased by 2 jobs	8 bytes
JOBALC line adds two jobs (2 x 1812)	3624 bytes
TRMDEF PORT17,AM316=17:9600,TELVDO,100,100,100 (118 + buffers)	518 bytes
TRMDEF FACIT2,AM120=0:9600,TELTYP,2,2,100 (118 + .IDV + buffers)	666 bytes
JOBALC for CRT job	56320 bytes
JOBALC for printer	6144 bytes
Total =	67280 bytes

67280 bytes /1024 = 65.7K

Yes, they can do it but it will only leave them with 9k of CACHE.

4.2.2 CRT420 and BADBLK.SYS

Under normal operating conditions BADBLK.SYS should never be damaged. However, the following conditions could result in the unintentional removal of BADBLK.SYS from both 400MB and 70MB Fujitsu hard disk drives.

1. Warm-booting from either VCR or streamer tape and performing a disk write can alter or destroy BADBLK.SYS under certain conditions.

   A. When the WARMGEN file is configured using an incorrect disk driver any warm-boot and subsequent disk write may damage BADBLK.SYS.

   B. BADBLK.SYS may also be damaged when a disk driver used to create a WARMGEN file is divided into more or less logicals than the driver which wrote the last bitmap to the drive.

2. BADBLK.SYS can be damaged when dividing the disk into additional logicals. The Fujitsu driver references the per logical record size which is encoded into the BADBLK.SYS during certification. The record size in BADBLK.SYS is only valid for the number of logicals the drive was configured with at the time of certification. The driver refers to this record size in determining the logical splits when dividing the disk into additional devices. Because this record size pertains to the original configuration any calculations the new driver makes setting up the new split sizes are incorrect. The only way to ensure the integrity of BADBLK.SYS is to recertify the drive using a driver which is split into the desired number of logicals.

   Before any attempt is made to change the number of logicals make a hard copy of BADBLK.SYS and perform a complete system back-up.

3. An incorrect Bitmap size referenced in AMOSL.INI can cause BADBLK.SYS to be written over and destroyed.

4. In some cases BADBLK.SYS can be damaged by incorrectly inserting controller/drive interface cables. Ensure that all cable connections are made from Pin #1 to Pin #2.

5. Combining a 70MB Fujitsu with a 400MB Fujitsu drive on the same controller is another way BADBLK.SYS can be destroyed. When adding a 400MB drive to a 1072 system, which contains a 70MB Fujitsu drive, using the same AM-415 controller, certain precautions must be observed. A common mistake is to list the add-on 400MB drive as FBD0, FBD1, FBD2, FBD3, etc., in the AMOSL.INI file. In doing this the controller will inadvertently write onto DSK0 whenever accessing FBD0, because the AMOSL.INI has been incorrectly configured. The controller will see both DSK0 and FBD0 as logical 0.

   The solution to the above problem is to first determine the number of additional logicals being added to the system. In the above case a 400MB Fujitsu is being added with 13 logicals. If the add-on drive is FBD13, FBD15, FBD16, FBD17, through FBD 25. When attaching the add-on drive to port #2 then multiply 2 x the number of additional logicals which means the add-on drive would be defined as FBD26 through FBD38.

   Based on the above formula there is no way to come up with the number zero, which is why damage will result if the above add-on drive is defined as FBD0.

6. Of even greater consequence than the destruction of BADBLK.SYS is the possible accidental removal of the manufacturers drive defect information. Encoded on Fujitsu drives, in a

protected area, is a list of known media defects. When the drive is formatted using CRT415.LIT the defect information supplied by the manufacturer is decoded and incorporated into BADBLK.SYS.

If the manufacturers defect information is destroyed there is no way to rebuild BADBLK.SYS using CRT415.LIT. There are only a very few ways this can happen.

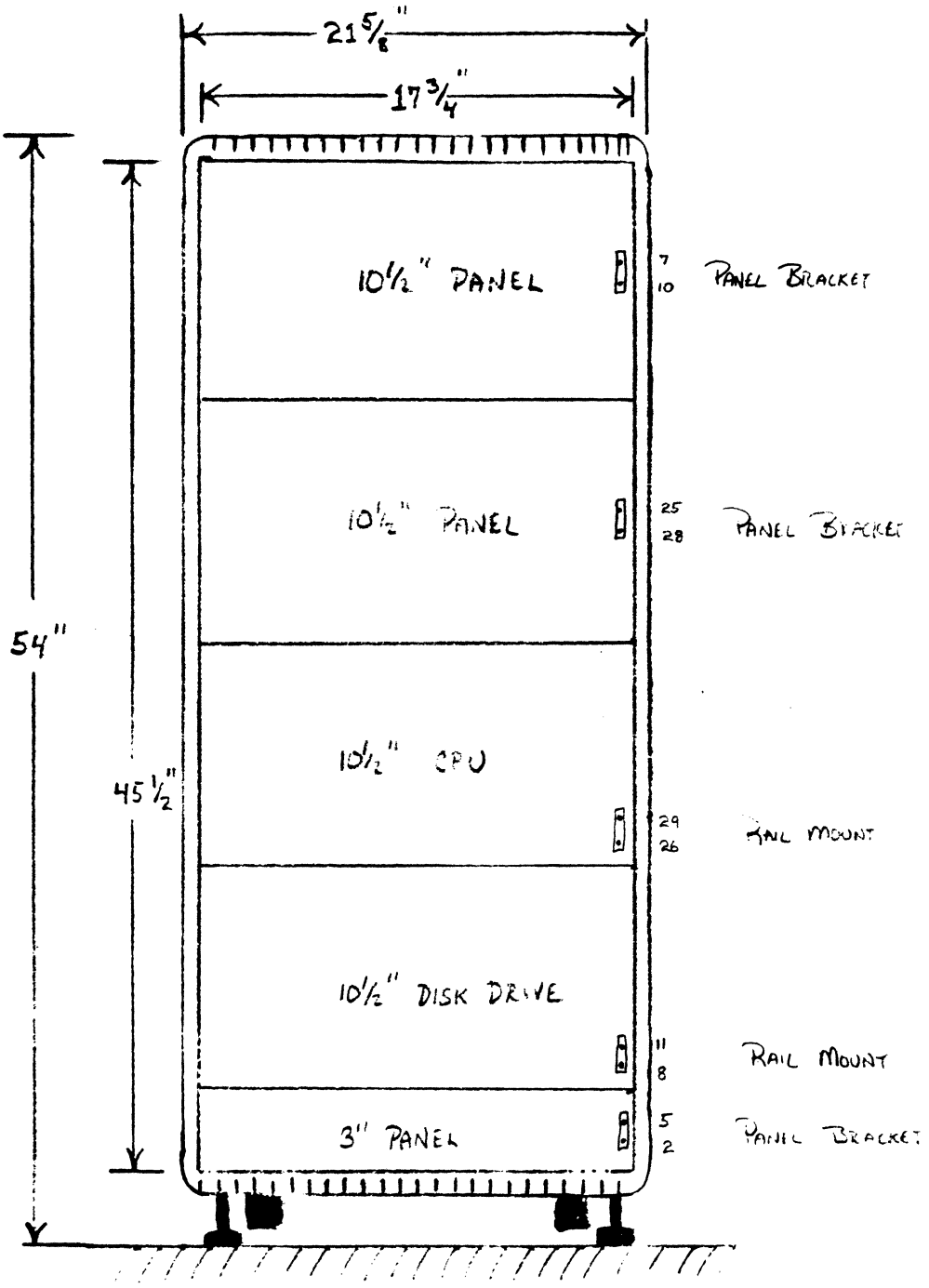
A. An AM-415 board with defective write circuitry can cause the manufacturers defect information to be written over. This would be an extreme case and is not likely to ever happen.

B. The sector count jumpers, which are located on the main electronics board on both 70MB and 400MB Fujitsu drives, should never be moved. These jumpers, preset by Alpha Micro, configure the drive to the proper sector size. Moving these jumpers will cause the drive to write in areas which should not be written to, including the protected area reserved for the manufacturers defect information.

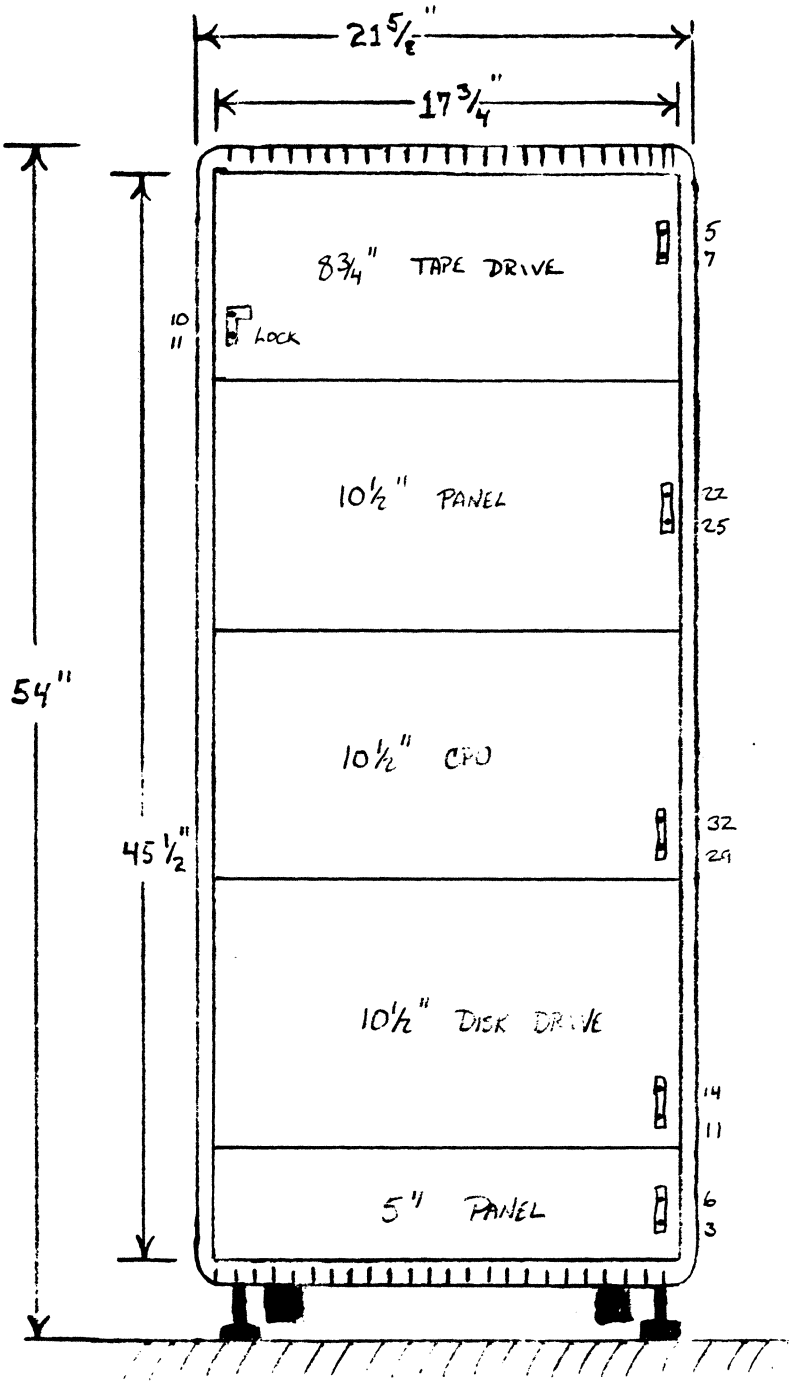
C. The destruction of the manufacturers defect information can occur when multiple Fujitsu drives share the same AM-415 controller. On the AM-415 board there are four ports labeled P2, P3, P4, and P5. One Fujitsu drive can be attached to each of these ports allowing a maximum of four drives. These ports pass data between the drive and the controller. The cable connections for these ports must be made Pin #1 to Pin #1.

Port P2 must be connected to the first physical device, P3 is for the second physical device, P4 is for the third physical device, and P5 is for the fourth physical device. Problems occur when, for example, the drive addressed as the first physical device is accidentally connected to a port other than P2. The controller will transmit data intended for the first physical device via P2. If the data cable from another device is inadvertently plugged into P2 data will be recorded onto areas which should not be written to. This mistake will alter the disk structure, if the manufacturers defect map is destroyed it can only be reconstructed by Alpha Micro.

4/86



1072/V & 1082/V


21 5/8"
17 3/4"
8 3/4" TAPE DRIVE
LOCK
10 1/2" PANEL
10 1/2" CPU
10 1/2" DISK DRIVE
5" PANEL
54"
45 1/2"
5
7
10
11
22
25
32
29
14
11
6
3

4/86

1092/m

M E M O R A N D U M

TO All Field Service Engineers

FROM: Matt Kroeger

DATE: 8/22/85

SUBJECT: Demarc X-mit/Rec Levels

The following procedure should be used when transmitting problems exist. I feel you should incorporate this test into the beginning of your troubleshooting procedure as it is a fast and simple test. It will also prevent unnecessary time on the customer site.

RECEIVE LEVELS: (black and white/yellow)
Place volt meter in A/C Volt mode and the lowest volt range. The following levels should be observed at the demarc.
.121 VA/C is the correct level
For existing circuits;
Anything between .068 and .154 VA/C is acceptable.
For new circuits;
Anything between .109 and .137 VA/C is acceptable.

SEND LEVELS: (red and green) Meter settings are the same. Check the DBM level option inside the modem, It should be set to 0. Next get your meter ready and turn on the constant carrier option inside the modem.In the GDC turn on switch #1 of switch bank S6. In the UDS move the CARRIER CONT jumper to the forward position, (make sure you turn off the UDS before changing jumper positions). Immediately check your voltage, make a note of your reading and turn off the constant carrier, (CAUTION: constant carrier will bring down the whole line). The level of the SEND side should be .785 VA/C with no tolerances. If you have a bad reading, remove the comm wire from the demarc and check the voltage again off the comm wire. If the reading is still off you have a bad modem. If it is o.k. there is a line problem and it should be reported to network.

If levels are o.k. continue with your normal procedures. If levels are off contact network and report findings. Continue to your next appointment as it will be impossible to effectivly troubleshoot a terminal transmit problem with a bad line.

Matt

Conversion table for volts AC to decibles measured at 600 ohm impedance

Demarc modem - 16 DBM, .121 VAC Rec.
(Tolerance - 21 DBM, .068 VAC) Rec.
(- 14 DBM, .154 VAC) Rec.
Demarc modem trans 0DBM,.785 VAC
(Tolerance none)
Misc. levels and corresponding VAC

+5.5DBM=	1.493VAC	-18 DBM=	.096VAC
+4.0DBM-	1.261VAC	-19 DBM=	.087VAC
+3.0DBM-	1.127VAC	-20 DBM=	.077VAC
+2.0DBM=	1.000VAC	-21 DBM=	.068VAC
+1 DBM=	.894VAC	-22 DBM=	.061VAC
0 DBM=	.785VAC	-23 DBM=	.055VAC
-1 DBM=	.688VAC	-24 DBM=	.048VAC
-2 DBM=	.621VAC	-25 DBM=	.042VAC
-3 DBM=	.556VAC	-26 DBM=	.038VAC
-4 DBM=	.493VAC	-36 DBM=	.011 VAC
-5 DBM=	.441VAC		
-6 DBM=	.390VAC		
-7 DBM=	.346VAC		
-8 DBM=	.309VAC		
-9 DBM=	.276VAC		
-10 DBM=	.245VAC		
-11 DBM=	.219VAC		
-12 DBM=	.194VAC		
-13 DBM=	.170VAC		
-14 DBM=	.154VAC		
-15 DBM=	.137VAC		
-16 DBM=	.121VAC		
-17 DBM=	.109VAC		

6.0 PLANNING DATA

The tables below contain information to help you in planning the set-up of your system. Table 1 shows the physical dimensions of the various L-series systems sold by Alpha Micro, plus the weight and heat dissapation. Table 2 shows the power specifications for the systems. Finally, Table 3 gives the Input Current requirements for the various L-series circuit boards supported by Alpha Micro.

TABLE 1 -- Alpha Micro Integrated Systems Planning Data

COMPONENT	DIMENSIONS				APPROX. HEAT DIS-SAPATION (BTU/hr.)
	Height (inches)	Width (inches)	Depth (inches)	WEIGHT (lbs.)	
AM-1042E	11.25	19.0	30.25	70	790
AM-1072	29.0	21.62	36.0	260	1700
AM-1082	50.25	21.62	36.0	350	2350
AM-1092	50.25	21.62	36.0	375	2700
AM-60 Terminal	12.5	15.0	12.5	35	205
Keyboard	2.6	20.5	7.1		
AM-302 Printer	9.79	23.85	19.11	60	1197

TABLE 2 — Power Specifications

COMPONENT	POWER SOURCE (Volts)	CURRENT DRAW (Amps)
AM-1042E	115	5.0
	230	2.5
AM-1072	115	10.0
	230	5.0
AM-1082	115	10.0
	230	5.0
AM-1092	115	7.0
	230	3.5
AM-60	120	0.5
	240	0.25
AM-302	115	2.8
	240	1.4
AM-422	120	1.0
	240	0.5
AM-423	120	1.5
	240	0.75
AM-431	115	2.4
	230	1.2
AM-435	115	4.6
	230	2.8
AM-600	100 120 220 240	3.0 2.5 1.36 1.25

Table 1 (Cont'd)

COMPONENT	DIMENSIONS				APPROX. HEAT DIS-SAPATION (BTU/hr.)
	Height (inches)	Width (inches)	Depth (inches)	WEIGHT (lbs.)	
AM-421 Disk Subsystem	10.5	16.75	27.5	70	750
AM-422 Disk Subsystem	10.5	16.75	27.5	70	750
AM-423 Disk Subsystem	7.37	16.75	24.0	64	2048
AM-431 Disk Subsystem	10.5	19.0	29.25	70	750
AM-435 Disk Subsystem	10.4	19.0	27.35	137	2100
AM-600 Mag Tape Sub-System	24.0	19.0	15.8	95	1500
AM-610 VCR Subsystem Board	--	--	--	--	68
AM-621 Streamer Subsystem	10.5	16.75	27.5	55	767

TABLE 3 -- Typical Input Current Requirements

Circuit Board	+8V Unreg. (amps)	+16V Unreg. (milliamps)	-16V Unreg. (milliamps)
AM-120	0.75	< 35	30
AM-160	2.9	120	60
AM-210	1.05	50	50
AM-300	0.8	100	100
AM-310 316	1.25 2.5	100 500	75 500
AM-320	0.92	-	-
AM-330	1.2	90	60
AM-400	1.2	50	50
AM-410	2.25	-	450
AM-415	3.8	-	500
AM-420	2.7	60	60
AM-500	1.65	-	-
AM-600/T	2.1	-	-
AM-610	2.2	150	180
AM-710 (Selected)	1.5	130	50
(Unselected)	1.1	70	50
AM-720 (Selected)	2.3	-	-
(Unselected)	1.4	-	-
AM100L	2.5 A	75 mA	20 mA

2.5.7 Changing Logical Splits on Fujitsu Drives

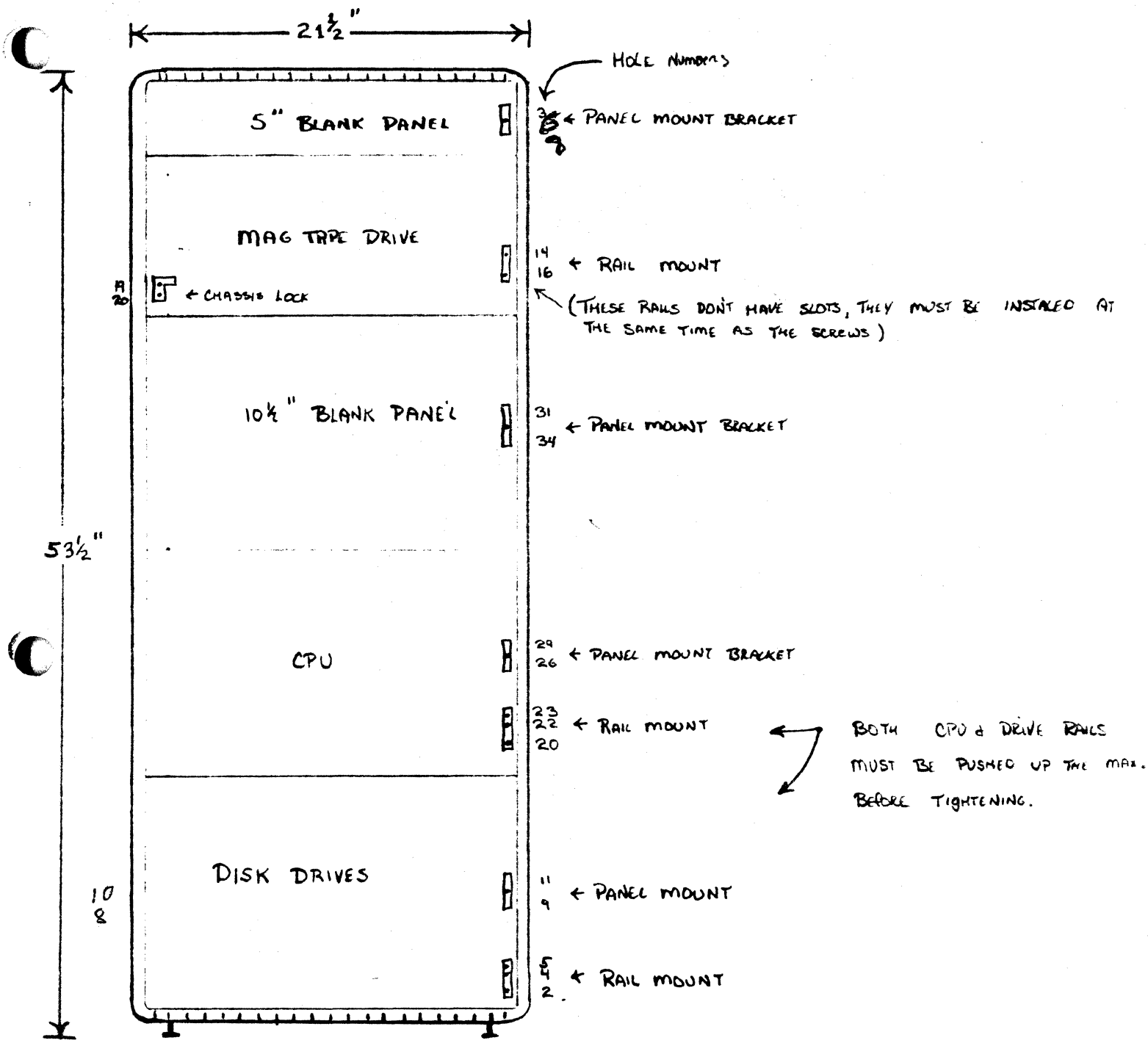
The standard method for changing logical splits on most of Alpha Micro's Winchester series drives since AMOS/L Version 1.2 has been to warm boot under the desired number of logical devices and initialize the drive to prevent the bitmap from overlaying the BADBLK.SYS file. This is still the accepted method for AM-420 and Xebec (AM-1000) controlled devices.

In order to optimize the throughput of Alpha Micro's line of high performance Fujitsu disk drives, logical split information is stored in the BADBLK.SYS file. In addition to this, defect information is stored directly in the track header on the drive and is accessible to the AM-415. CRT415 does not need to run a real-time pattern test on the drive to create a BADBLK.SYS file. It must only read the factory defect information, giving a much more reliable BADBLK.SYS file than can be obtained by certification in the field of standard AM-420 and Xebec certified drives.

If it is desired to change the number of logicals on the Fujitsu drives, since logical split information is stored in the BADBLK.SYS file, the drive must be recertified using CRT415/z. The /z will clear out the data area of each track, a requirement. This will install the new logical split information into BADBLK.SYS, and the drive will operate properly.

If the logical split is changed on the Fujitsu using the same method as for other Winchester type drives, symptoms such as phantom copies to multiple logicals, and address errors mounting the upper logical may occur. Additionally the logical split may be changed, because the pointers to the same starting block for that logical are still in BADBLK.SYS. CRT415/z resets these pointers to the appropriate area on the disk.

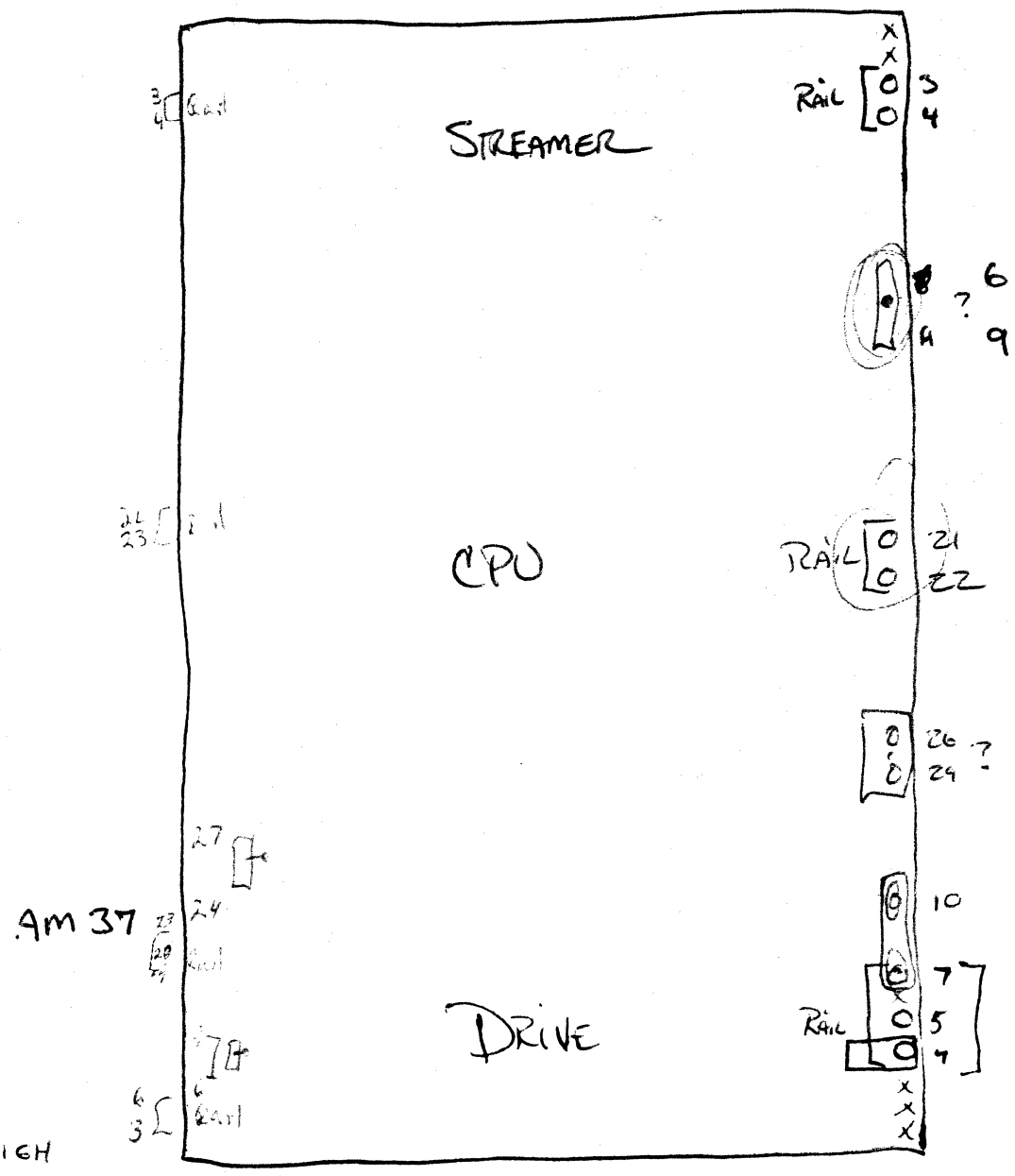
If the special defect area has been corrupted for any reason, you will get the message "drive defective". This should be easily corrected using the procedure detailed in the A.M.T.S. Journal Vol. 5, No. 12 (December 1983), "Recovery of Fujitsu Defect Maps".



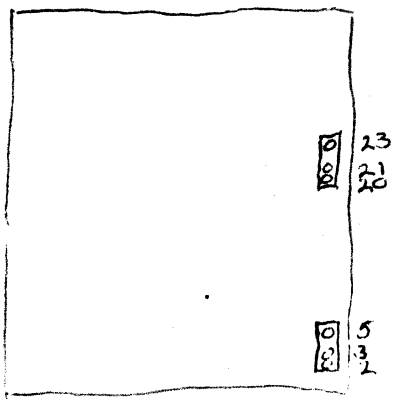
AM1082/m CHASSIS SPECS

ATTR/M

AM37



2-DRAWER FILE HIGH



[redacted]

"T"

AMOS/WD-16 SYSTEMS:

1. LOG ONTO DSKO: ANY VALID ACCOUNT
2. ENTER BASIC
3. TYPE TWO LINES:
   A=WORD(78)
   WORD(A+16)=258
4. EXIT BASIC type Bye

AMOS/L 68000 SYSTEMS:

"L"

1. LOG ONTO DSKO: ANY VALID ACCOUNT
2. ENTER BASIC
3. TYPE TWO LINES:
   A=WORD(1054)
   WORD(A+20)=258
4. EXIT BASIC type Bye

SYSACT

*A - Add Path

C - Change Password

D - Delete Path

F - Exit

H - Help

I - Initialize Disk

Serial Communication Standards Overview

The most widely used standard today for interfacing between data terminal equipment and data communications equipment is the Electronics Industries Association (EIA) RS-232C interface. This is a single-ended, bipolar voltage unterminated circuit used for sending serial binary data over short distances of up to fifty feet at low rates up to 20 Kilobaud. The RS-232C is a protocol standard as well as an electrical standard. It specifies hand-shaking signals, such as Data Set Ready (DSR) and Data Terminal Ready (DTR) and functions between terminal and communications equipment. See Table I for a complete list of RS-232C signals.

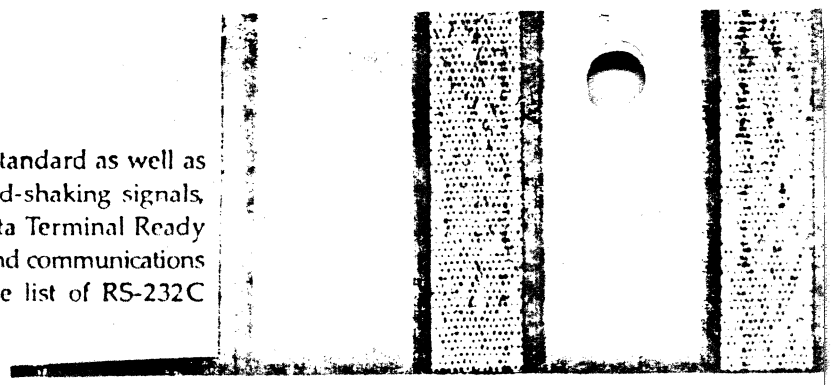


Table I RS-232C Signals

Pin	Circuit	Description	Source	Type
1	AA	Protective Ground (Chassis)	Ground	Ground
2	BA	Transmit Data from Terminal	Terminal	Data
3	BB	Receive Data to Terminal	Modem	Data
4	CA*	Request to Send (Terminal On-line)	Terminal	Control
5	CB	Clear to Send (Modem Response to CA)	Modem	Control
6	CC	Data Set Ready (Phone Functions)	Modem	Control
7	AB	Signal Ground (Signal Common Return)	Ground	Ground
8	CF	Carrier Detect (Received Line Signal Detect)	Modem	Control
9	–	(Positive Test Voltage)	–	–
10	–	(Negative Test Voltage)	–	–
11	–	Unassigned	–	–
12	SCF	Secondary Carrier Detect	Modem	Control
13	SCB	Secondary Clear to Send	Modem	Control
14	SBA	Secondary Transmit Data	Terminal	Data
15	DB	XMT Clock Pos. Edge=Signal Element Transition	Modem	Timing
16	SBB	Secondary Receive Data	Modem	Data
17	DD	RCV Clock Neg. Edge=Signal Element Center	Modem	Timing
18	–	Unassigned	–	–
19	SCA*	Secondary Request to Send	Terminal	Control
20	CD*	Data Terminal Ready (Terminal On-line)	Terminal	Control
21	CG	Signal Quality Detect (Off for Receive Error)	Modem	Control
22	CE	Ring Indicator	Modem	Control
23	C H/CI	Baud Rate Select (Data Signal Rate Select)	Terminal/ Modem	Control
24	DA	XMT Clock Neg. Edge=Signal Element Center	Terminal	Timing
25	–	Unassigned	–	–

*Fail-Safe

Terminal = Data Terminal Equipment = DTE

Table II RS-232 Connector Pinouts

Pin #	AM-100 Connection	AM-310 Connection	AM-100/T & AM-120 Connection Port 0 (J3)	Port 1 (J4)
1	–	Chassis GND	Chassis GND	Chassis GND
2	(input)	(input)	(input)	(input)
3	(output)	(output)	(output)	(output)
4	–	(input)	–	(input)
5	(output)[3]	(output)	+5VS[1]	(output)
6	–[3]	(output)	+5VS[1]	(output)
7	GND	GND	GND	GND
8	–[3]	(input)	–	(input)
9	–	–	–	–
10	–	–	–	–
11	–	–	–	–
12	–	–	–	–
13	–	–	–	–
14	–	–	–	–
15	–	(I/O)[2]	–	(I/O)[2]
16	–	–	–	–
17	–	(I/O)[2]	–	–
18	–	–	–	–
19	–	–	–	–
20	(input)	(input)	–	(input)
21	–	–	–	–
22	–	–	–	–
23	–	–	–	–
24	–	–	–	–
25	–	–	–	–

1 Pulled up to +5 volts through 5.1K resistor
2 Jumper selectable to either input or output
3 Normally jumpered together internally on cable

CABLE LENGTH - FEET

Single-ended circuits are susceptible to all forms of

HOW TO ORDER A DIAL UP DATA LINE FOR CAIR/EVOLUTION

Contact your local telephone business office and explain to the representative that you would like to place an order for a DIAL UP DATA LINE.

They will require the following routine information:

a). ADDRESS FOR BILLING-BILLING CONTACT
b). CREDIT INFORMATION
c). NAME OF BUSINESS,ADDRESS,TELEPHONE #,TYPE OF BUSINESS AT YOUR LOCATION.

They may require some of the following technical information:

a). WHAT IS THE FCC REGISTRATION #?	----	AG 697J62451-DM-E
b). WHAT IS THE RINGER EQUIVALENCY?	----	0.6B
c). WHAT IS THE JACK CODE OR TERMINATION????	----	RJ11 (MODULAR TYPE)
d). DO YOU NEED A TELEPHONE SET?	----	NO.(NONE IS USED)
e). HOW MANY PAIR OR WIRES?	----	2 WIRE (1 PAIR)
f). TYPE CIRCUIT OR CHANNEL?	----	VOICE GRADE LINE
g). WHAT TYPE DATA SET OR MODEM WILL BE USED?	----	UNIVERSAL DATA SYSTEM MODEL 212-A. FCC REGISTERED BELL SYS. COMPATIBLE.

If there are any complications, please contact:

Robyn Schaefer at I.S.I.
714-752-0875

Keyboard Generated Codes

Character	Octal	Dec	Hex	Character	Octal	Dec	Hex
(space)	040	32	0020	2	062	50	0032
!	041	33	0021	3	063	51	0033
"	042	34	0022	4	064	52	0034
#	043	35	0023	5	065	53	0035
$	044	36	0024	6	066	54	0036
%	045	37	0025	7	067	55	0037
&	046	38	0026	8	070	56	0038
'	047	39	0027	9	071	57	0039
(	050	40	0028	:	072	58	003A
)	051	41	0029	;	073	59	003B
*	052	42	002A	<	074	60	003C
+	053	43	002B	=	075	61	003D
,	054	44	002C	>	076	62	003E
-	055	45	002D	?	077	63	003F
.	056	46	002E	@	100	64	0040
/	057	47	002F	A	101	65	0041
0	060	48	0030	B	102	66	0042
1	061	49	0031	C	103	67	0043

Keyboard Generated Codes (cont.)

Character	Octal	Dec	Hex	Character	Octal	Dec	Hex
D	104	68	0044	V	126	86	0056
E	105	69	0045	W	127	87	0057
F	106	70	0046	X	130	88	0058
G	107	71	0047	Y	131	89	0059
H	110	72	0048	Z	132	90	005A
I	111	73	0049	[	133	91	005B
J	112	74	004A	\	134	92	005C
K	113	75	004B	]	135	93	005D
L	114	76	004C	^	136	94	005E
M	115	77	004D	_	137	95	005F
N	116	78	004E	`	140	96	0060
O	117	79	004F	a	141	97	0061
P	120	80	0050	b	142	98	0062
Q	121	81	0051	c	143	99	0063
R	122	82	0052	d	144	100	0064
S	123	83	0053	e	145	101	0065
T	124	84	0054	f	145	102	0066
U	125	85	0055	g	146	103	0067

Keyboard Generated Codes (cont.)

Character	Octal	Dec	Hex	Character	Octal	Dec	Hex
h	150	104	0068	z	172	122	007A
i	151	105	0069	{	173	123	007B
j	152	106	006A	|	174	124	007C
k	153	107	006B	}	175	125	007D
l	154	108	006C	~	176	126	007E
m	155	109	006D	Backspace	010	8	0008
n	156	110	006E	Tab	011	9	0009
o	157	111	006F	Linefeed	012	10	000A
p	160	112	0070	Return	015	13	000D
q	161	113	0071	Esc	033	27	001B
r	162	114	0072	Space bar	040	32	0020
s	163	115	0073				
t	164	116	0074	**********			
u	165	117	0075	**			**

v	166	118	0076	** Next Page Contains **
w	167	119	0077	** Control Codes **
x	170	120	0078	** **
y	171	121	0079	**********

Keyboard Generated Control Codes

Char	(Mnem)	Octal	Dec	Hex	Char	(Mnem)	Octal	Dec	Hex
	(NUL)	000	0	0000	P	(DLE)	020	16	0010
A	(SOH)	001	1	0001	Q	(DC1)	021	17	0011
B	(STX)	002	2	0002	R	(DC2)	022	18	0012
C	(ETX)	003	3	0003	S	(DC3)	023	19	0013
D	(EOT)	004	4	0004	T	(DC4)	024	20	0014
E	(ENQ)	005	5	0005	U	(NAK)	025	21	0015
F	(ACK)	006	6	0006	V	(SYN)	026	22	0016
G	(BEL)	007	7	0007	W	(ETB)	027	23	0017
H	(BS)	010	8	0008	X	(CAN)	030	24	0018
I	(HT)	011	9	0009	Y	(EM)	031	25	0019
J	(LF)	012	10	000A	Z	(SUB)	032	26	001A
K	(VT)	013	11	000B	[	(ESC)	033	27	001B
L	(FF)	014	12	000C	\	(FS)	034	28	001C
M	(CR)	015	13	000D	]	(GS)	035	29	001D
N	(SO)	016	14	000E	~	(RS)	036	31	001E
O	(SI)	017	15	000F	?	(US)	037	31	001F