TECHNICAL MANUAL

AM-900

CPU CHASSIS

DWM-00900-XX

REV. A02

alpha micro

ALPHA MICRO SYSTEMS
17881 Sky Park North
Irvine, Ca. 92714

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1.0 INTRODUCTION

This manual provides operating and maintenance instructions for the AM-900 Alpha Micro Computer Chassis manufactured by Alpha Microsystems located in Irvine, California. Chassis description, theory of operation and maintenance instructions are included to provide the user with the information necessary to utilize this chassis to its full capacity.

1.1 CHASSIS DESCRIPTION

The AM-900 Computer Chassis is easily converted from 115 VAC to 230 VAC, 50 or 60 Hz. The AM-900 contains a fully regulated linear power supply with input filtering to provide maximum line-noise immunity. There is a 9 and a 19 slot terminated motherboard option, with dual Floppy Drive configurations available with the 9 slot motherboard. Power-fail detect circuitry is provided from the power supply. The PC board power dissipation is significantly reduced due to the regulated power supply. Standard S-100 compatible PC boards as well as the new tall style boards can be accommodated. This chassis and accessories are fully factory tested.

The several configurations available for the AM-900 are summarized in Table 1-1.

Table 1-1. Computer Chassis Configuration Summary

Part Number	AC Input Requirement	Style	Card Cage Capacity	Additional Features
PDB-00900-00	115V 60Hz @ 5A	Table Top	19 Slots	
-01	230V 50Hz @ 2.5A	Table Top	19 Slots	
-02	115V 60Hz @ 5A	Rack Mount	19 Slots	
-03	230V 50Hz @ 2.5A	Rack Mount	19 Slots	
-04	115V 60Hz @ 5A	Table Top	9 Slots	Two Dual Density Double Sided Floppy Drives
-05	230V 50Hz @ 2.5A	Table Top	9 Slots	"
-06	115V 60Hz @ 5A	Rack Mount	9 Slots	"
-07	230V 50Hz @ 2.5A	Rack Mount	9 Slots	"

2.0 INTRODUCTION

This section describes the mechanical and electrical specifications required for the operation of the AM-900 Computer Chassis.

2.1 MECHANICAL CONSIDERATIONS (Table Top Configuration)

NOTE: Rack Mount configurations are essentially the same except the width is compatible with standard 19 inch Retma rack dimensions.

1. AM-900 with 19 slot motherboard
   a. Size: 27.5" deep × 16.5" wide × 10.5" high
   b. Weight: 50 lbs. nominal

2. AM-900 with 9 slot motherboard and Dual Floppy Drives
   a. Size: 27.5" deep × 16.5" wide × 10.5" high
   b. Weight: 70 lbs. nominal

3. Rack Mount Slides
   a. Centerline of the slides: 8.75 inches from the bottom.
   b. Top mounting hole: 9 inches from the bottom.
   c. Centerline of the slide: ¼ inch below the top mounting hole. The lower hole is designed to fit either ½ or ⅝ inch below the top hole.

2.2 A.C. INPUT REQUIREMENTS

1. 115 VAC ± 10%, 47-63 Hz fused at 5 Amps
2. Optional configuration: 230 VAC ± 10%, 47-63 Hz fused at 2.5 Amps.
3. Conversion from 115 VAC to 230 VAC field retrofittable, see Section 3.4.

2.3 OPERATING ENVIRONMENTAL REQUIREMENTS

1. Ambient Operating Temperature Range: 10°C to 35°C
2. Relative Humidity: 20% to 80%, without condensation.

2.4 LINEAR REGULATED POWER SUPPLY

The output from the power supply is constant and will compensate for load as it is added to maintain a constant output voltage.

2.4.1 DC OUTPUTS (All are short circuit protected.)

1. +7.5 Volts
   a. Current Rating: 30 Amps maximum
   b. Line Regulation: ±0.1% for 10% line change
   c. Load Regulation: ±0.1% for 50% load change
   d. Output Adjustment Range: ±5%
   e. Remote Sensing

2. +16 Volts
   a. Current Rating: 3.0 Amps maximum
   b. Line Regulation: ±0.1% for 10% line change
   c. Load Regulation: ±0.1% for 50% load change

3. −16 Volts
   a. The specifications are the same as for the +16 Volt output.

4. 24 Volts (Only on the floppy based system)
   a. Current Rating: 2.4 Amps
   b. Line Regulation: ±.01% for 10% line change
   c. Load Regulation: ±.02% for 50% load change

2.4.2 AC OUTPUTS

1. 24 Volt peak to peak, 50/60 Hz
   a. Current Rating: 10 ma
   b. Short circuit protected

2. 115 VAC
   a. Used on 230 VAC configurations to supply input power to the fan and floppy drives.

2.5 MOTHERBOARD

1. Capacity: 9 slot or 19 slot
2. Signal line Termination:
   a. All signal lines are terminated by resistors to 2.5 Volts. Exceptions are busses 12, 13, and 75. (See Table 3-1.)
3. Card Edge Connector: 100 pin connector, 0.125 inch centers (standard S-100 bus configuration).
4. Auxiliary Regulations
   a. Two +5 Volt regulators @ 1 Amp each.
   b. One −5 Volt regulator @ 0.3 Amps.

2.6 REAR PANEL STANDARD OUTPUTS

1. Remote AC Control Connector
   a. +7.5 Volts through a 330 ohm limiting resistor and ground are provided to allow remote control of AC to other peripherals via chassis key switch.

2.7 DUAL FLOPPY DRIVES

Dual Floppy Drives are optional. For specifications, see the manual that is included with the Floppy Drive. The Floppy Drive option jumpers and switches are set up as described in Section 3.5.

3.0 INTRODUCTION

The Alpha Microsystems' series of Computer Chassis has been designed in the same format as the S-100 Bus with several improvements. This section gives a description of specific improvements to the chassis.

3.1 LINEAR REGULATED POWER SUPPLY

The incorporation of a regulated power supply to replace the S-100 Bus unregulated power supplies provides several basic advantages.

3.1.1 REGULATED VOLTAGE

The regulated voltage feature will significantly decrease the power dissipation on each PC Board in the system, thereby increasing the reliability of each board used by the system.

3.1.2 FOLDBACK CURRENT LIMITING

Foldback Current limiting is designed into the power supply in order to eliminate the use of fuses on the power supply outputs. This feature eliminates the need to replace a fuse in case of a short on the bus.

3.1.3 CONVERTING FROM 115 VAC 60 Hz TO 230 VAC 50 Hz

This is a simple, straightforward step with no replacement of a transformer required. (See Section 3.4.)

3.1.4 POWER FAIL SIGNAL

A Power Fail signal is generated by the power supply and routed to bus pin 13. This signal is designed so that when full AC power is applied to the power supply, the line will be clamped to ground through an NPN transistor. When AC power falls below 103 volts AC, however, this signal will be open. The DC outputs from the power supply will maintain regulation for at least eight (8) msec after the Power Fail signal fires. (See Section 3.6 for Power Fail Detect Adjustment Procedure.)

3.1.5 LINE FREQUENCY SIGNAL

A Line Frequency signal (24 volts peak to peak) is generated by the power supply and routed to bus pin 12, and may be used as a real-time clock signal by any board residing on the bus.

3.2 ENHANCED TERMINATED MOTHERBOARD

The Alpha Microsystems' terminated Motherboard (9 and 19 slot) offers terminated lines and regulators.

3.2.1 TERMINATED LINES

All lines are terminated through resistors to +2.5 volts with some exceptions. For these exceptions, consult Table 3-1.

3.2.2 REGULATORS

The following regulators are provided on the Motherboard:

+5v @ 1 Amp

+5v @ 1 Amp

−5v @ 0.3 Amp

These regulators are typically used to provide power to peripherals such as the Floppy Disk Drives.

3.3 MECHANICAL CONSIDERATIONS

Several features have been designed into the Alpha Microsystems' series of Computer Chassis to provide versatility, flexibility, upward compatibility and more accessibility to components.

3.3.1 EASY CONVERSION

To convert from a table top to a rack mounted configuration, install a rack mountable front panel, side panels and a top cover. There is no rewiring required.

3.3.2 FRONT AND REAR PANELS

Both front and rear panels are easily removable and include connectors for plug-in installation.

3.3.3 MOTHERBOARD AND CARD CAGE

The Motherboard and Card Cage are easily removed from the CPU Chassis.

3.3.4 COMPATIBILITY

The Chassis has been designed to be compatible with standard size, S-100 bus boards as well as the new Alpha Microsystems' expanded boards.

NOTE: In order to utilize an Alpha Micro AM-100 CPU board set in the chassis, the following jumper MUST BE added to board #2 of the AM-100:

J1-12 to J3-4

3.4 115 TO 230 VAC CONVERSION PROCEDURE

The following procedures cover conversion of a CPU Chassis initially configured for 115 VAC operation to 230 VAC operation:

1. Make sure that the CPU Chassis is completely unplugged from the AC line.

2. Remove the cover from the terminal block (J1) mounted at the rear of the linear regulated power supply.

3. Note that the jumpers are installed at J1 between pins 1 and 3, and 2 and 4. Remove these jumpers and reinstall one of the jumpers between pins 2 and 3. Save the other jumper in case a reconversion process is necessary.

4. Reinstall terminal block cover at J1.

5. Install a 250v, 2.5 Amp fuse in the fuse holder at the rear panel.

6. Re-mark the label at the rear of the CPU Chassis with the correct rating information.

7. Convert the AC power cord to a 230 VAC compatible AC cord.

8. If your system contains floppy drives, consult the manual with the floppy drives for conversion procedures.

9. When using an AM-100/T CPU, it will be necessary to adjust the Power Fail Circuitry. Refer to Section 3.6 for details.

3.5 FLOPPY DRIVE CONFIGURATOR (Reference page 5-12 of the Floppy Drive Manual.)

1. Jumper block installations:

   TS, NS, SS, RR, RI, B, WP, HO, Z, DL, S2, DD, A, B, S, R, I, C

2. Drive Number Selection (Switch 1)

   a. Left hand drive (Drive 0)

      S1-4 and S1-8 ON

   b. Right hand drive (Drive 1)

      S1-3 and S1-7 ON

3. Resistor Pack RM3 must only be installed in Drive 0 (left hand drive). It must be removed from Drive 1.

3.6 POWER FAIL DETECT ADJUSTMENT PROCEDURE

The Power Fail Detect threshold level has been set at the factory as follows:

1. For 115 VAC, 60Hz units, the threshold level is set at 103 VAC.
2. For 230 VAC, 50Hz units, the threshold level is set at 206 VAC.

To change the Power Fail Detect threshold level, proceed as follows:

1. Remove the CPU chassis cover. If the chassis is a rack-mount version, remove the side panel nearest the power supply. Make sure an AM-100/T CPU board is installed in the system.
2. Using a Variac (Variable Transformer), adjust the AC input voltage for the desired threshold voltage.
3. Plug the CPU chassis into the Variac and turn on the AC power.
4. Monitor the Power Fail signal on the bus (pin 13) using a scope or voltmeter.
5. Observe the power supply from the open side of the CPU Chassis. Note the two potentiometers on the PC board mounted to the base of the power supply. The potentiometer nearest the front panel (R4) controls the threshold setting. Adjust this control until the power fail signal changes level, approximately a five volt change.

NOTE: Clockwise adjustment of R4 increases the voltage threshold.

This completes the adjustment. Turn off the AC power and mechanically restore the unit to its original condition.

Table 3-1. Exceptions to Resistor Terminated Lines.

Bus Pin	**Function**
1, 51	+7.5v
2	+16.v
12	Real Time Clock
13	Power Fail Detect
20, 50, 53, 70, 100	Ground
52	−16v
75	Reset

The above lines have no bus terminators.

4.0 INTRODUCTION

The AM-900 Computer Chassis performs to full capability with a minimum of maintenance. This Section describes maintenance and troubleshooting procedures and procedures for handling warranty returns.

4.1 INSPECTION PROCEDURES

Immediately upon receiving the Computer Chassis, inspect all contents for physical damage which may have occurred during shipping. Report any damage or incorrect shipment to your dealer or Alpha Microsystems' Customer Service.

4.2 WARRANTY PROCEDURES

This Computer Chassis is covered by warranty issued by Alpha Microsystems, Irvine, California. Complete details of the warranty are included with the chassis. Should a problem arise with this chassis, call your dealer or the Alpha Micro International Support/Services Group for information.

4.3 INITIAL TEST PROCEDURES

Before installing any boards in the chassis, the following procedures should be followed:

1. Examine the system I.D. label on the rear of the chassis, checking to make sure that the AC voltage input requirement is the correct one for your AC power service. For details on input power options, see Section 3.4

2. Remove the top cover from the chassis. If the chassis includes Floppy Disk Drives, remove any drive packing material and save it in a case the chassis is to be reshipped.

3. Plug the chassis into the AC power outlet and turn the key switch to the ON position.

4. Examine the fan to insure that it is operating. If not, check the fuse at the rear of the unit and the connectors at the front and rear of the unit for proper mating.

5. Next, monitor the voltages at TB1 on the Motherboard. The following points should be monitored:

TB1-1	+7.5v nominal
TB1-4	+16v nominal
TB1-10	−16v nominal

Use TB1-6 as a ground reference.

6. Monitor bus pin 12 on any PC edge connector on the Motherboard. A 24v peak-to-peak AC signal at line frequency should appear here. TB1-6 should be used as ground reference.

7. Monitor the VT test pad in the regulator section of the Motherboard. The voltage should read +2.5 volts ± 0.2 volts. TB1-6 should be used as ground reference.

8. To use a two-card, AM-100 CPU, see Section 3.3.4.

9. To check the configuration of the floppy drives, see Section 3.5.

If all of the above steps appear as described, the chassis is ready to accept the System PC boards.

4.4 OPERATIONAL MAINTENANCE

This section describes maintenance instructions required to keep the CPU Chassis in operational status.

4.4.1 FRONT PANEL LAMP

A lighted push button on the front panel is used to reset the System and also indicates whether AC power has been switched on. To replace the lamp, pull off the switch cap from the front and remove the bulb. The bulb replacement part number is listed in Section V.

4.4.2 FUSE

The CPU Chassis contains only one fuse which is located on the rear panel. The holder cap can be turned and pulled out for fuse replacement.

4.4.3 FLOPPY DISK DRIVE

Consult the manual that accompanies the drive.

4.5 PREVENTIVE MAINTENANCE

This section describes maintenance instructions that are required to prevent problems.

4.5.1 GENERAL CHASSIS CLEANING

Cleaning for visual reasons is a customer prerogative. Any commercial cleaner can be utilized. However, care must be taken to avoid spilling liquid into any part of the Chassis.

4.5.2 CHASSIS FAN FILTER

The fan filter is located on the rear panel. The filter can be cleaned with a fine stream of water after removal. The frequency of cleaning will be dictated by environmental conditions.

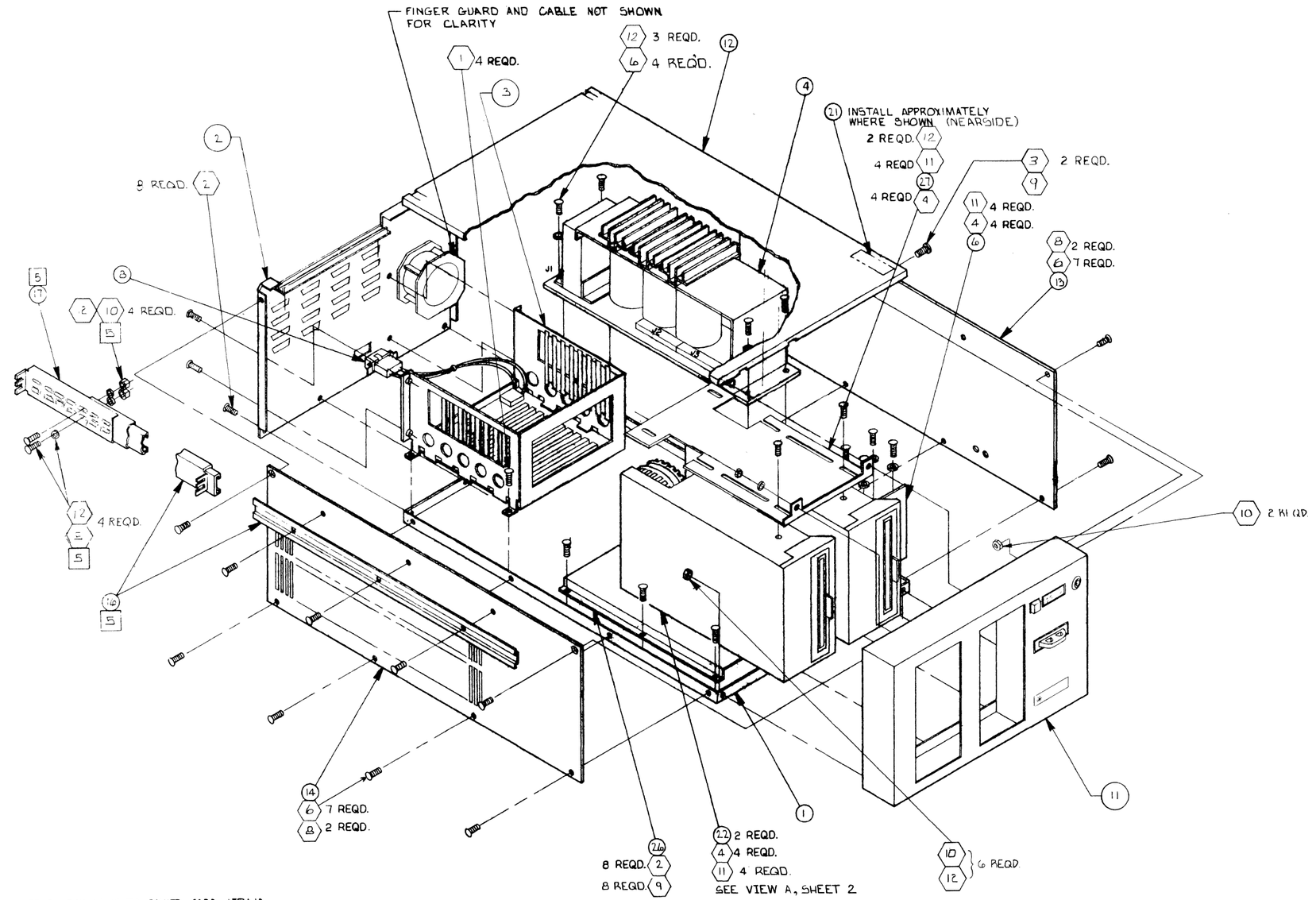
4.6 REPLACEMENT PARTS AND REPAIR SERVICE

Alpha Microsystems makes available major subassemblies for use as replacement parts. To assist the customer, Alpha Microsystems will provide assistance through the Authorized Dealer Network or the Alpha Microsystems International Support/ Service Group, Customer Service Department.

SECTION V

MECHANICAL ASSEMBLIES

REVISIONS			
LTR	DATE	DESCRIPTION	APPR
A00	5-10-81	RELEASE PER EN 00438	
B00	6/30	REVISE PER EN 00467	
B01	6/30	INCORP PER EN 00501	
B02	6/30	INCORP PER EN 00502	
B03	6/30	INCORP PER EN 00503	
B04	3-4-82	REVISE PER EN 00756	
C00	3-4-82	REVISE PER EN 00794	



7. TAIE POWER SWITCH KEYS TO POWER CORD, ITEM 10.

6. ADD CABLE TIE BASES APPROXIMATELY WHERE SHOWN. USING CABLE TIES, SECURE THE HARNESS WIRES TO THE TIE BASES TO PREVENT THE WIRES FROM BECOMING ENTANGLED IN THE FLOPPY DOOR MECHANISM AND/OR THE FAN BLADES.

5. OPPOSITE SLIDE NOT SHOWN - SAME HARDWARE REQUIRMENTS.

4. AFTER TEST PLACE ALL ACCOMPANYING CABLES IN UNIT.

3. TEST HIPOT AND GROUND CONTINUITY PER DWS-000006-00.

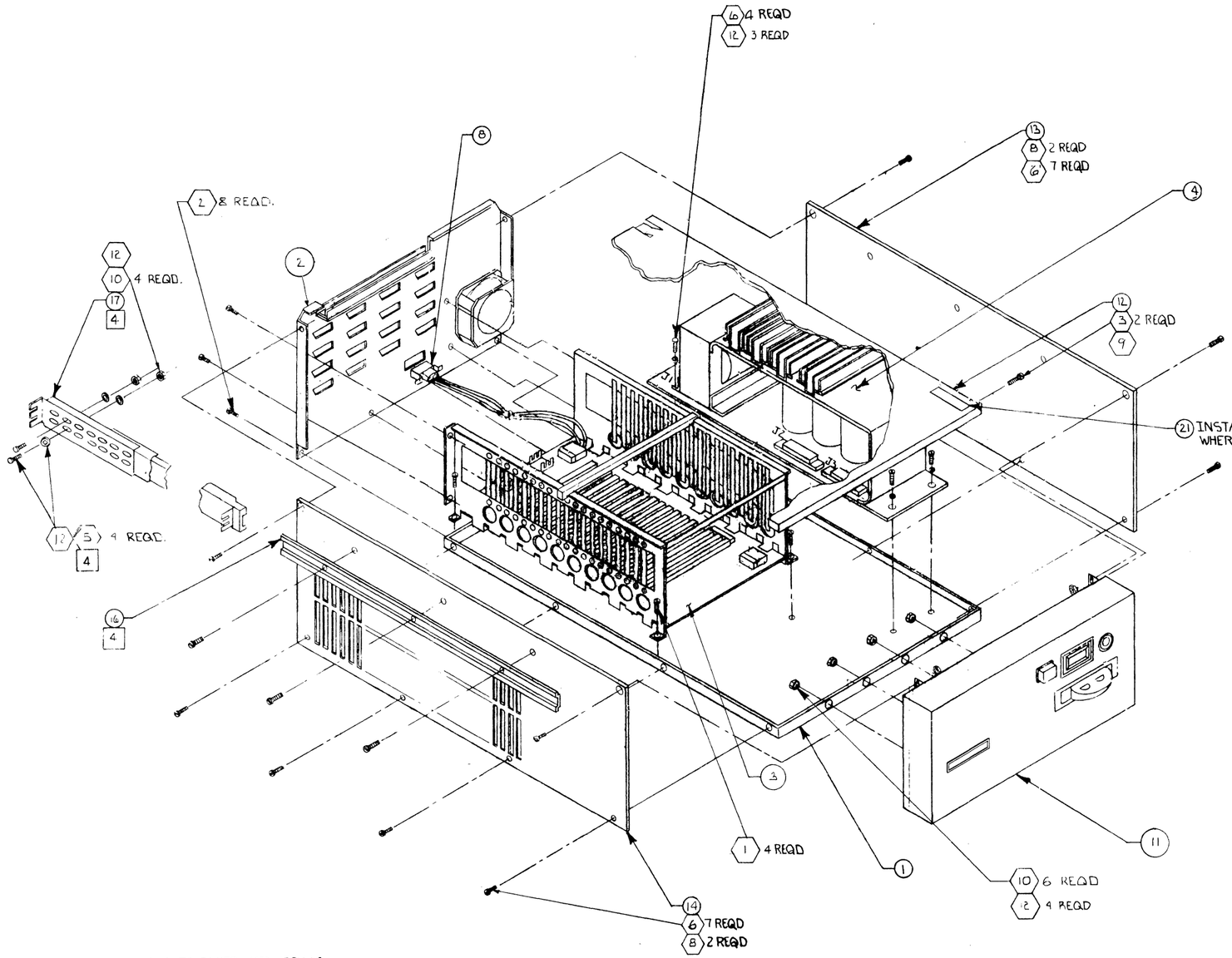
2. NUMBERS INSIDE HEXAGONS REFER TO NUMBERS ON HARDWARE BILL HDB-00005-11. (ITEM 19)

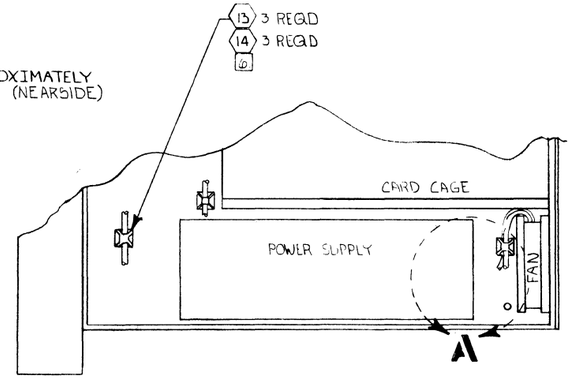
1. CABLE ASSEMBLIES (ITEMS 5 & 7) NOT SHOWN, INSTALL CABLING PER DWL-30001-XX.

NOTE: UNLESS OTHERWISE SPECIFIED

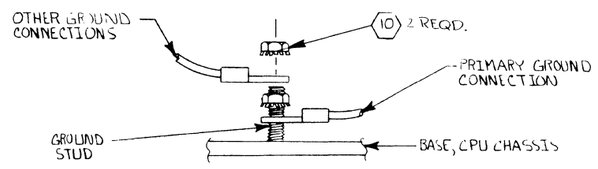
DO NOT SCALE DWG		DWN Chuck Nelson 2-4-81	alpha micro IRVINE, CA 92713
ALL DIMS IN INCHES TOLERANCES .X ± 1 .XX ± .03 .XXX ± .010 ANGLES ± 2° SURFACE ✓ UNLESS OTHERWISE SPECIFIED		CHK	TITLE: CPU ASSEMBLY, R/M WITH FLOPPY, 115 V, 60 HZ
		ENG	
		APPD	
		APPD	
NEXT ASSY	USED ON	THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND SUCH INFORMATION MAY NOT BE REPRODUCED OR DISCLOSED TO OTHERS FOR ANY PURPOSE OR USED TO PRODUCE THE ARTICLE OR SUBJECT, WITHOUT WRITTEN PERMISSION FROM ALPHA MICRO	SCALE 1/4 NOTED; WEIGHT —; DWG SIZE D; DWG NO. DWB-30003-00; REV C00; SHEET 1 OF 2
APPLICATION			

REVISIONS			
LTR	DATE	DESCRIPTION	APPR
A00	3-10-81	RELEASE PER E.N. 00438	
B00	6/30/81	REVISE PER EN 00467	
B01	6/30/81	INCORP PER EN 00501	
B02	6/30/81	INCORP PER EN 00502	
B03	3-9-82	INCORP PER EN 00756	
C00	3-9-82	REVISE PER EN 00794	





TOP VIEW OF CPU WITH COVER REMOVED



DETAIL A
ROTATED 90°
SCALE NONE

7. TAPE POWER SWITCH KEYS TO POWER CORD, ITEM 10.

6. ADD CABLE TIE BASES APPROXIMATELY WHERE SHOWN, USING CABLE TIES, SECURE THE HARNESS WIRES TO THE TIE BASES TO PREVENT THE WIRES FROM BECOMING ENTANGLED IN THE FAN BLADES.

5. CABLE ASSEMBLE, ITEM 5, NOT SHOWN, INSTALL PER DWL-30001-XX.

4. OPPOSITE SIDE SLIDE NOT SHOWN - SAME HARDWARE REQUIREMENTS.

3. AFTER TEST PLACE ALL ACCOMPANYING CABLES IN UNIT.

2. NUMBERS INSIDE HEXAGONS REFER TO NUMBERS ON HARDWARE BILL HDB-00005-11. (ITEM 19)

1. TEST HIPOT AND GROUND CONTINUITY PER DWS-00006-00

NOTE: UNLESS OTHERWISE SPECIFIED

DO NOT SCALE DWG	DWN S.CATLIN	2681	alpha micro IRVINE, CA. 92713
ALL DIMS IN INCHES TOLERANCES X ±.1, XX ±.03, XXX ±.010, ANGLES ±2° SURFACE ✓ UNLESS OTHERWISE SPECIFIED	CHK	4511	TITLE: ASSEMBLY, CHASSIS, 19 SLOT, RM 115V, 60 HZ
	ENG		
	APPD		
	APPD		
NEXT ASSY / USED ON	THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND SUCH INFORMATION MAY NOT BE REPRODUCED OR DISCLOSED TO OTHERS FOR ANY PURPOSE OR USED TO PRODUCE THE ARTICLE OR SUBJECT, WITHOUT WRITTEN PERMISSION FROM ALPHA MICRO		SCALE 1/4 & NOTED; WEIGHT #; DWG D; SIZE; DWG NO. DWB-30004-00; REV C.05; SHEET; OF 1
APPLICATION			

REVISIONS			
LTR	DATE	DESCRIPTION	APPR
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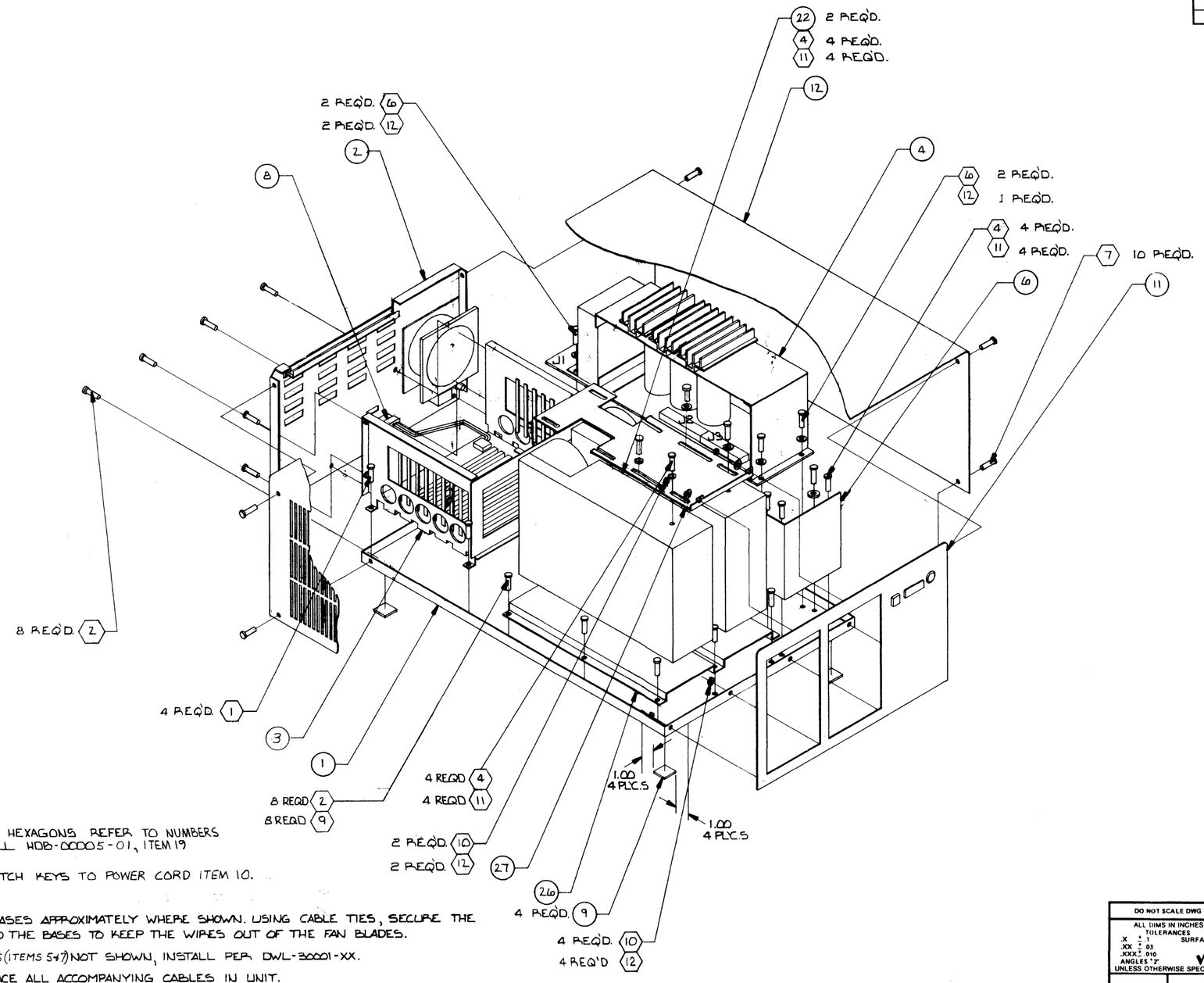
B00	3-4-82	REVISE PER EN 00794	J. Frisk



6. NUMBERS INSIDE HEXAGONS REFER TO NUMBERS ON HARDWARE BILL HDB-00005-01, ITEM 19
5. TAPE POWER SWITCH KEYS TO POWER CORD ITEM 10.

[4] ADD CABLE TIE BASES APPROXIMATELY WHERE SHOWN. USING CABLE TIES, SECURE THE HARNESS WIRES TO THE BASES TO KEEP THE WIRES OUT OF THE FAN BLADES.

3. CABLE ASSEMBLYS (ITEMS 5+7) NOT SHOWN, INSTALL PER DWL-30001-XX.
2. AFTER TEST PLACE ALL ACCOMPANYING CABLES IN UNIT.
1. TEST HIPOT AND GROUND CONTINUITY PER DWS-00006-00.

NOTE: UNLESS OTHERWISE SPECIFIED

SEE SEPARATE BILL OF MATERIAL

DO NOT SCALE DWG	DWN K. ESLICK	4-81
ALL DIMS IN INCHES TOLERANCES .X ± 1 .XX ± 03 .XXX ± 010 ANGLES ± 5° SURFACE ✓ UNLESS OTHERWISE SPECIFIED	CHK	
	ENG	
	APPD	
	APPD	
NEXT ASSY / USED ON APPLICATION	THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND SUCH INFORMATION MAY NOT BE REPRODUCED OR DISCLOSED TO OTHERS FOR ANY PURPOSE OR USED TO PRODUCE THE ARTICLE OR SUBJECT, WITHOUT WRITTEN PERMISSION FROM ALPHA MICRO	

alpha micro
IRVINE, CA. 92713

TITLE
CHASSIS ASSY., TT, W/FLOPPY
115 V, 60HZ

SCALE	DWG	DWG NO.	REV
1/4	D	DWB-30005-00	B.00
WEIGHT	SIZE	SHEET 1 OF 2	

REVISIONS			
LTR	DATE	DESCRIPTION	APPR
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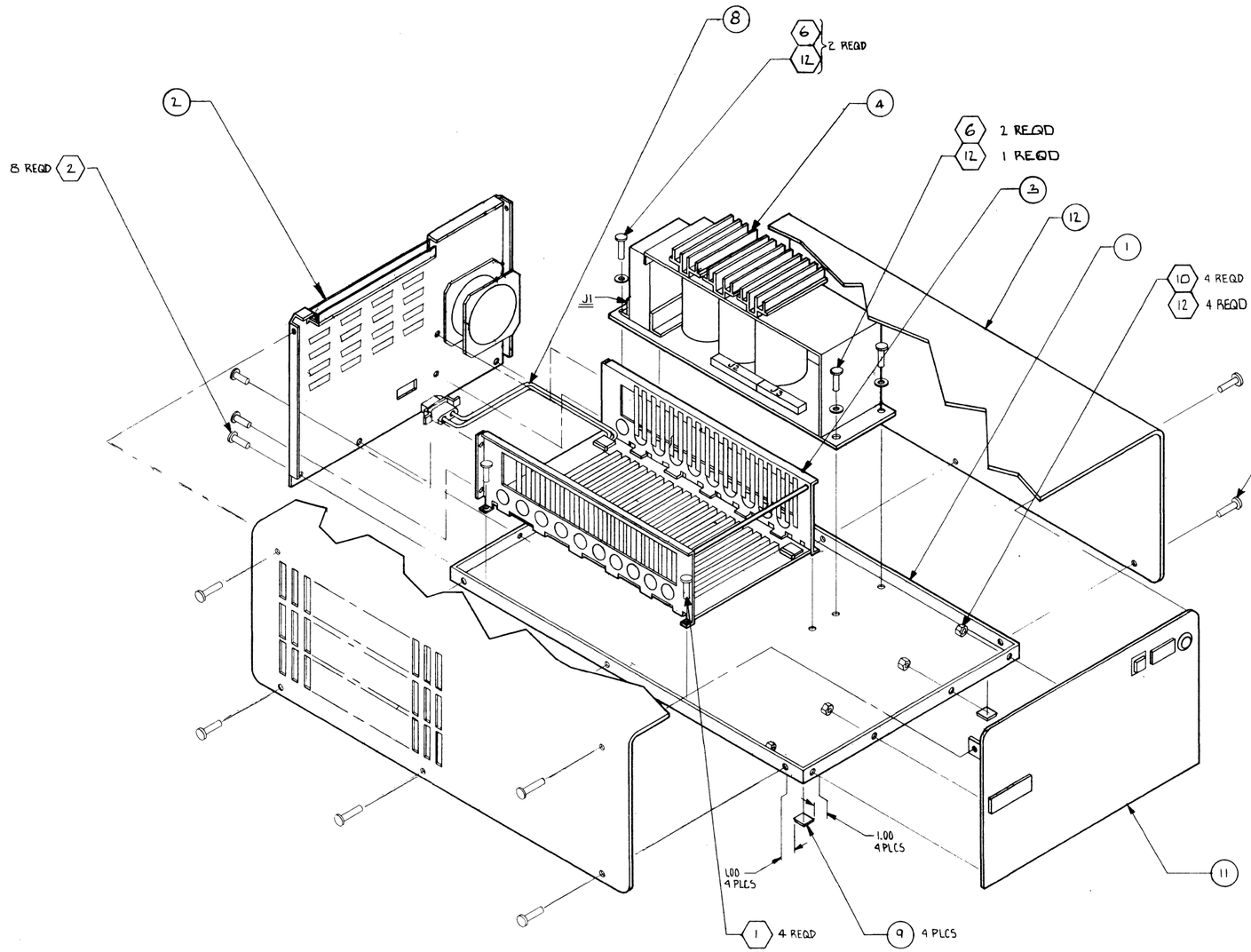
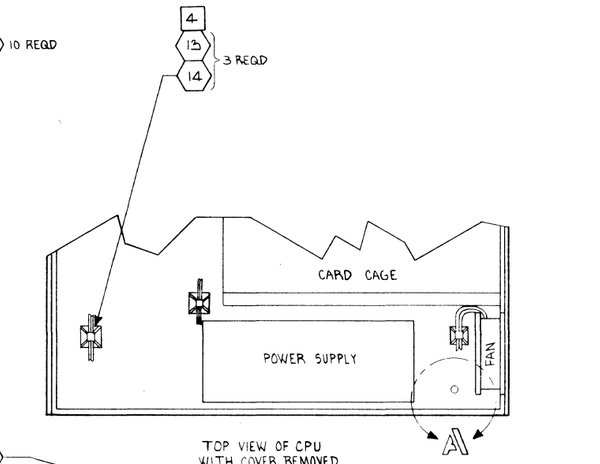
B00	3-4-82	REVISE PER EN00794	





DETAIL A

ROTATED 90°
SCALE : NONE

SEE SEPARATE BILL OF MATERIAL

6. TAPE POWER SWITCH KEYS TO POWER CORD, ITEM 10
5. NUMBERS IN HEXAGONS REFER TO NUMBERS ON HARDWARE BILL HDW-00005-01, ITEM 19.
4. ADD CABLE TIE BASES APPROXIMATELY WHERE SHOWN. USING CABLE TIES, SECURE THE HARNESS WIRES TO THE TIE BASES TO PREVENT THE WIRES FROM BECOMING ENTANGLED IN THE FAN BLADES.
3. CABLE ASSEMBLY, (ITEM 5) NOT SHOWN, INSTALL PER DWL-30001-XX.
2. AFTER TEST PLACE ALL ACCOMPANYING CABLES IN UNIT.
1. TEST HIPOT AND GROUND CONTINUITY PER DWS-00006-00.

NOTE: UNLESS OTHERWISE SPECIFIED

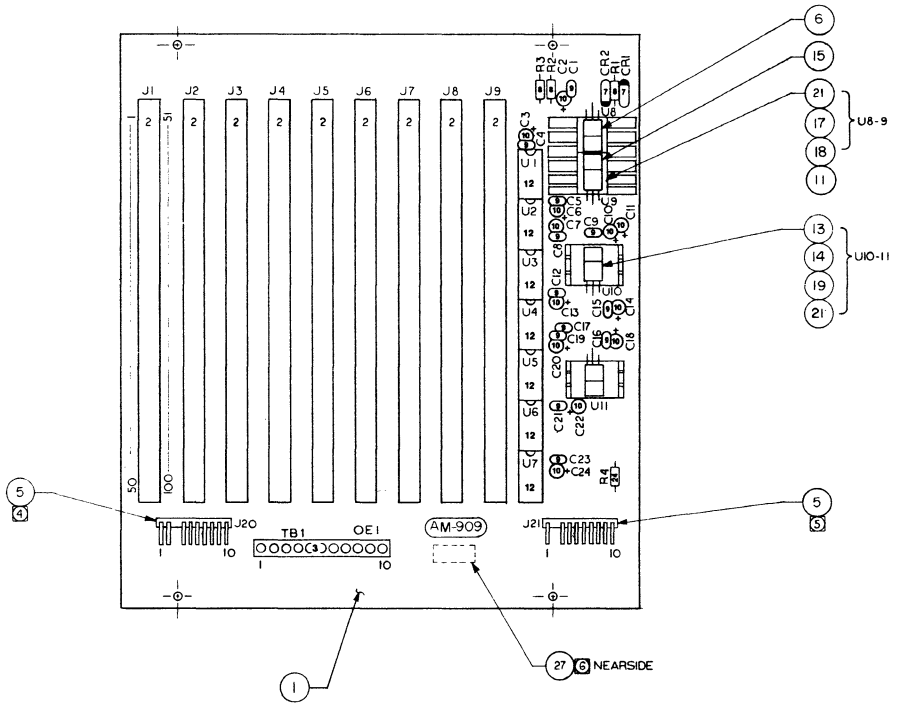
DO NOT SCALE DWG		DWN M. Burlington	3/27/81
ALL DIMS IN INCHES TOLERANCES X ± .1, .XX ± .03, .XXX ± .010, ANGLES ± 2°, SURFACE ✓ UNLESS OTHERWISE SPECIFIED		CHK [illegible]	4/9/81
		ENG	
		APPD	
		APPD	
NEXT ASSY	USED ON	THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND SUCH INFORMATION MAY NOT BE REPRODUCED OR DISCLOSED TO OTHERS FOR ANY PURPOSE OR USED TO PRODUCE THE ARTICLE OR SUBJECT, WITHOUT WRITTEN PERMISSION FROM ALPHA MICRO	
APPLICATION			

alpha micro
IRVINE, CA 92713

TITLE: CHASSIS ASSY, TT, W/O FLOPPY, 115 V, 60 HZ

SCALE	DWG	DWG NO.	REV
1/4 & NOTED	D	DWB-30006-00	B00
WEIGHT	SIZE	SHEET 1 OF 1	

REVISIONS				
REV.	COMP. REV.	DATE	DESCRIPTION	APPR
B00		4-17-79	RELEASE PER EN00042	J.GLADE
C00		8-18-79	REVISE PER EN00099	J.GLADE
C01		10-1-79	REVISE PER EN00120	J.GLADE
C02		10-12-79	REVISE PER EN00128	G.MANSON
D00		3-24-80	REVISE PER EN00192	G MANSON
E00		5-7-80	REVISE PER EN00240	G.MANSON
E01	C03	[illegible]	REVISE PER EN00317	
E01	C03		DEVIATION EN00384	
F00	C03, E01	↓	REVISE PER EN00394	
F01	E02	2-9-82	REVISE PER EN00751	



SEE SEPARATE BILL OF MATERIALS

6 APPLY SERIAL NO. IN AREA SHOWN BY [illegible]
5 REMOVE PIN 2 FROM J21.
4 REMOVE PIN 3 FROM J20.
3.
2. SEE DWS-30000-04 FOR REGULATOR MOUNTING ASSY. U10,U11.
1. SEE DWS-30000-03 FOR REGULATOR MOUNTING ASSY. U8,U9.

NOTE: UNLESS OTHERWISE SPECIFIED

7. NUMBERS INSIDE COMPONENT OUTLINES REFER TO ITEM NUMBERS ON CORRESPONDING BILL OF MATERIALS.

DO NOT SCALE DWG
ALL DIMS IN INCHES
TOLERANCES
X ± 1
XX ± 03
.XXX ± 010
ANGLES ± 2°
UNLESS OTHERWISE SPECIFIED
SURFACE √
NEXT ASSY | USED ON
APPLICATION

DWN M Burlington 7/1/80
CHK
ENG
APPD
APPD

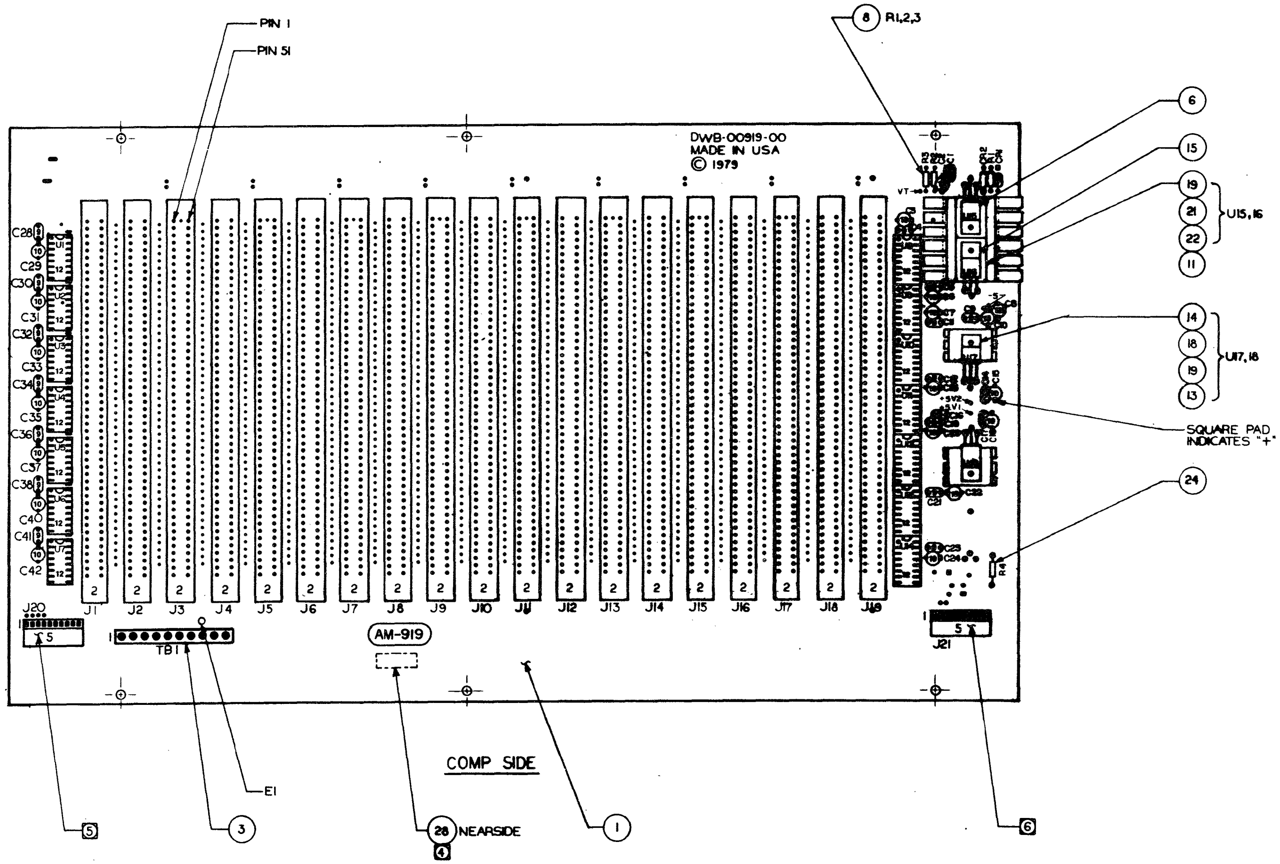
alpha micro
IRVINE, CA 92713

TITLE
ASSEMBLY, MOTHERBOARD, 9 SLOT, S-100 BUS

SCALE 1:1
WEIGHT
DWG SIZE D
DWG NO. DWB-00909-00 REV F01
SHEET 1 OF 1

REVISIONS

REV.	COMP. REV.	DESCRIPTION	DATE	APPROVED
B00		RELEASED PER EN00042	4-17-79	
C00		INCORP PER EN00099	8-18-79	
C01		INCORP. PER EN00120	10-1-79	
C02		INCORP PER EN00133	10-12-79	
C03		INCORP EN00128	10-30-79	
D00		INCORP PER EN00192	3/25/80	
D01	C05	INCORP PER EN00317	11-10-80	
D02	C04	REWORK PER EN00319		
D02	C04	DEVIATION EN00384		
E00	D03, C06	INCORP PER EN00364		
E01		INCORP PER EN00751	2-9-82	



SEE SEPARATE BILL OF MATERIALS

6 REMOVE PIN 2 J21
5 REMOVE PIN 3 J20
4 APPLY SERIAL NO. IN AREA SHOWN BY [ ]
3.
2. SEE DWS-30000-04 FOR U17, U18 MOUNTING ASSY.
1. SEE DWS-30000-03 FOR U15, U16 MOUNTING ASSY.

NOTES: UNLESS OTHERWISE SPECIFIED.

7. NUMBERS INSIDE COMPONENT OUTLINE REFER TO CORRESPONDING ITEM NO ON BILL OF MATERIAL.

PARTS LIST

alpha micro

MOTHERBOARD ASSY, 19 SLOT, S-100 BUS

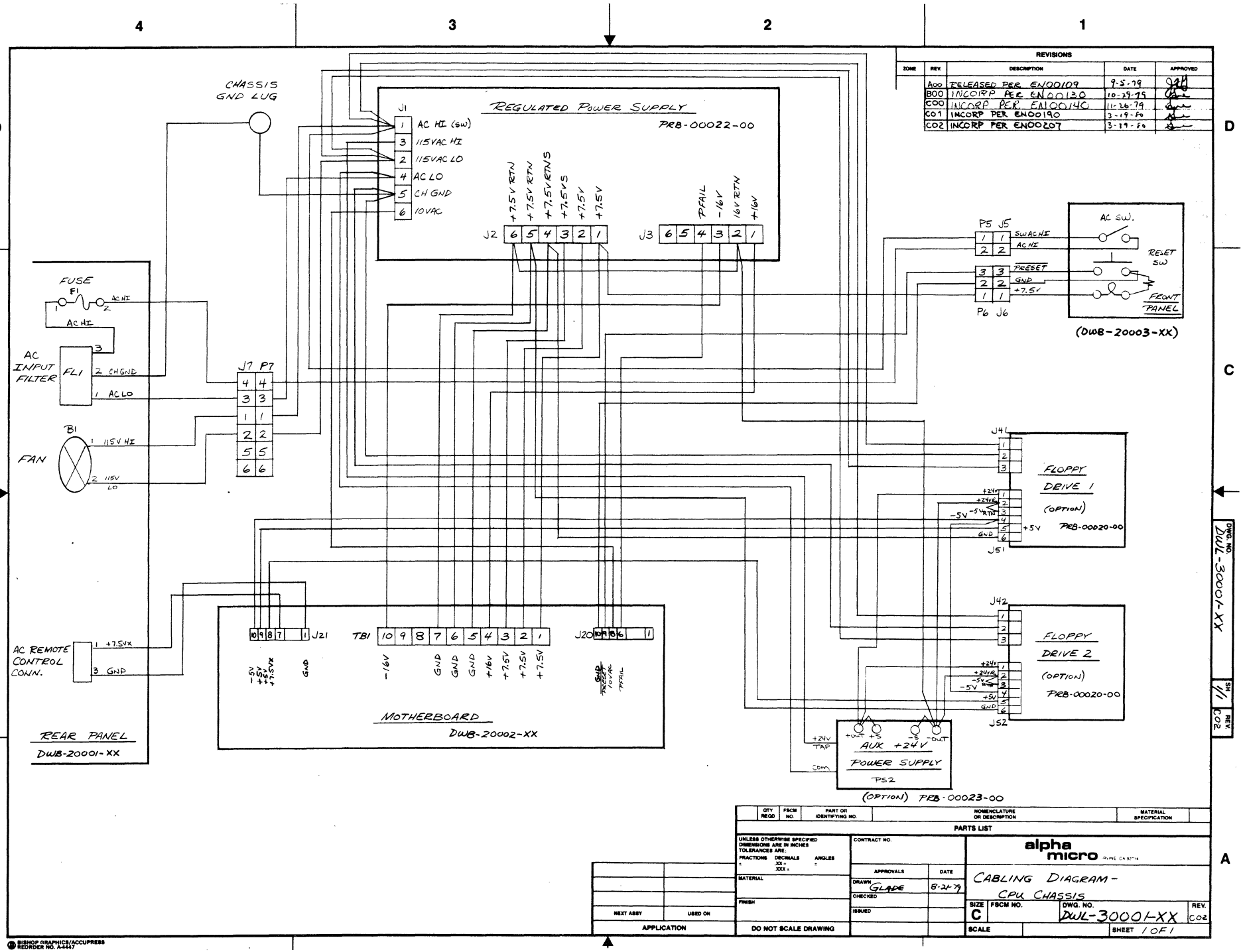
DRAWN 3-08/79
CHECKED 4-16-79

SIZE D | FSCM NO | DWG NO DWB-00919-00 | REV E01

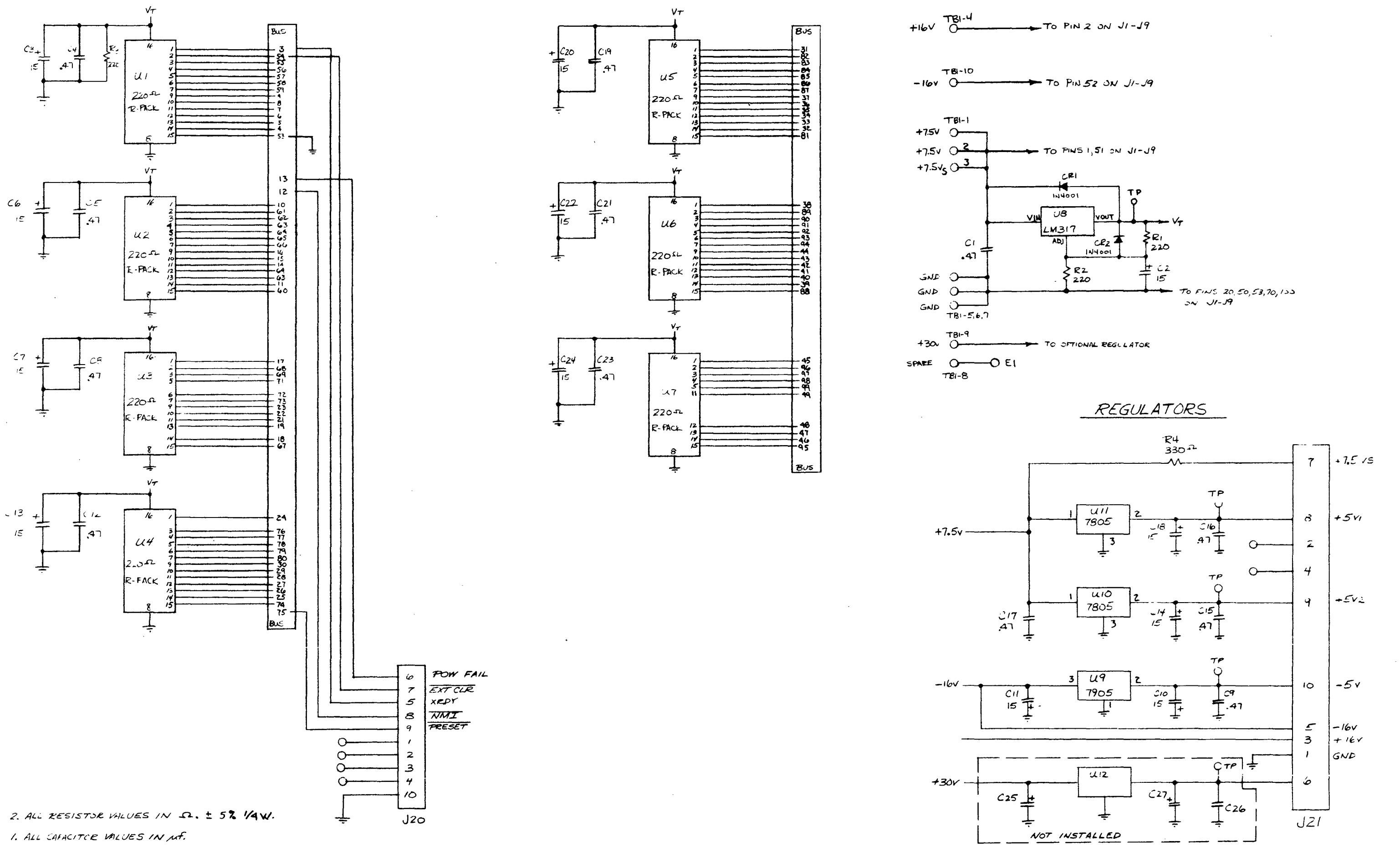
SCALE 1:1 | SHEET 1 OF 1

APPLICATION | DO NOT SCALE DRAWING

SECTION VI
SCHEMATICS


REVISIONS
ZONE | REV. | DESCRIPTION | DATE | APPROVED
A00 | RELEASED PER ENO0109 | 9-5-79
B00 | INCORP PER ENO0130 | 10-29-79
C00 | INCORP PER ENO0140 | 11-26-79
C01 | INCORP PER ENO0190 | 3-19-80
C02 | INCORP PER ENO0207 | 3-19-80
CHASSIS GND LUG
REGULATED POWER SUPPLY
PRB-00022-00
J1
1 AC HI (SW)
3 115VAC HI
2 115VAC LO
4 AC LO
5 CH GND
6 10VAC
J2 6 5 4 3 2 1
+7.5V RTN
+7.5V RTN
+7.5V RTNS
+7.5VS
+7.5V
+7.5V
J3 6 5 4 3 2 1
PFAIL
-16V
16V RTN
+16V
FUSE
F1
AC HI
AC HI
AC INPUT FILTER
FL1
3
2 CHGND
1 AC LO
B1
FAN
1 115V HI
2 115V LO
J7 P7
4 4
3 3
1 1
2 2
5 5
6 6
P5 J5
1 1 SW AC HI
2 2 AC HI
3 3 PRESET
2 2 GND
1 1 +7.5V
P6 J6
AC SW.
RESET SW
FRONT PANEL
(DWB-20003-XX)
J41
FLOPPY DRIVE 1
(OPTION)
PRB-00020-00
J51
+24V
-5V RTN
-5V
+5V
GND
J42
FLOPPY DRIVE 2
(OPTION)
PRB-00020-00
J52
AC REMOTE CONTROL CONN.
1 +7.5Vx
3 GND
REAR PANEL
DWB-20001-XX
J21 10 9 8 7 1
-5V
+5V
+7.5Vx
GND
TB1 10 9 8 7 6 5 4 3 2 1
-16V
GND
GND
GND
+16V
+7.5V
+7.5V
+7.5V
J20 10 9 8 6 1
GND
PRESET
10VAC
PFAIL
MOTHERBOARD
DWB-20002-XX
+24V TAP
COM
+OUT +S
-S -OUT
AUX +24V POWER SUPPLY
PS2
(OPTION) PRB-00023-00
PARTS LIST
QTY REQD | FSCM NO. | PART OR IDENTIFYING NO. | NOMENCLATURE OR DESCRIPTION | MATERIAL SPECIFICATION
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS DECIMALS ANGLES
± XX ± XXX ±
MATERIAL
FINISH
NEXT ASSY | USED ON
APPLICATION
DO NOT SCALE DRAWING
CONTRACT NO.
APPROVALS | DATE
DRAWN GLADE 8-24-79
CHECKED
ISSUED
alpha micro IRVINE CA 92714
CABLING DIAGRAM - CPU CHASSIS
SIZE C | FSCM NO. | DWG. NO. DWL-30001-XX | REV. C02
SCALE
SHEET 1 OF 1
DWG NO. DWL-30001-XX
SIZE
REV. C02
BISHOP GRAPHICS/ACCUPRESS REORDER NO. A4447

REV.	COMP REV	DESCRIPTION	DATE	APPROVED
C00		RELEASE PER EN00099	8-18-79	
E00		REVISE PER EN00240	5-7-80	
E01		REVISE PER EN00317	[illegible]	
E01	C03	DEVIATION EN00384	[illegible]	
F00	C03, E01	REVISE PER EN00364		
F01	E02	REVISE PER EN00751	2-9-82	



2. ALL RESISTOR VALUES IN Ω, ± 5% 1/4W.

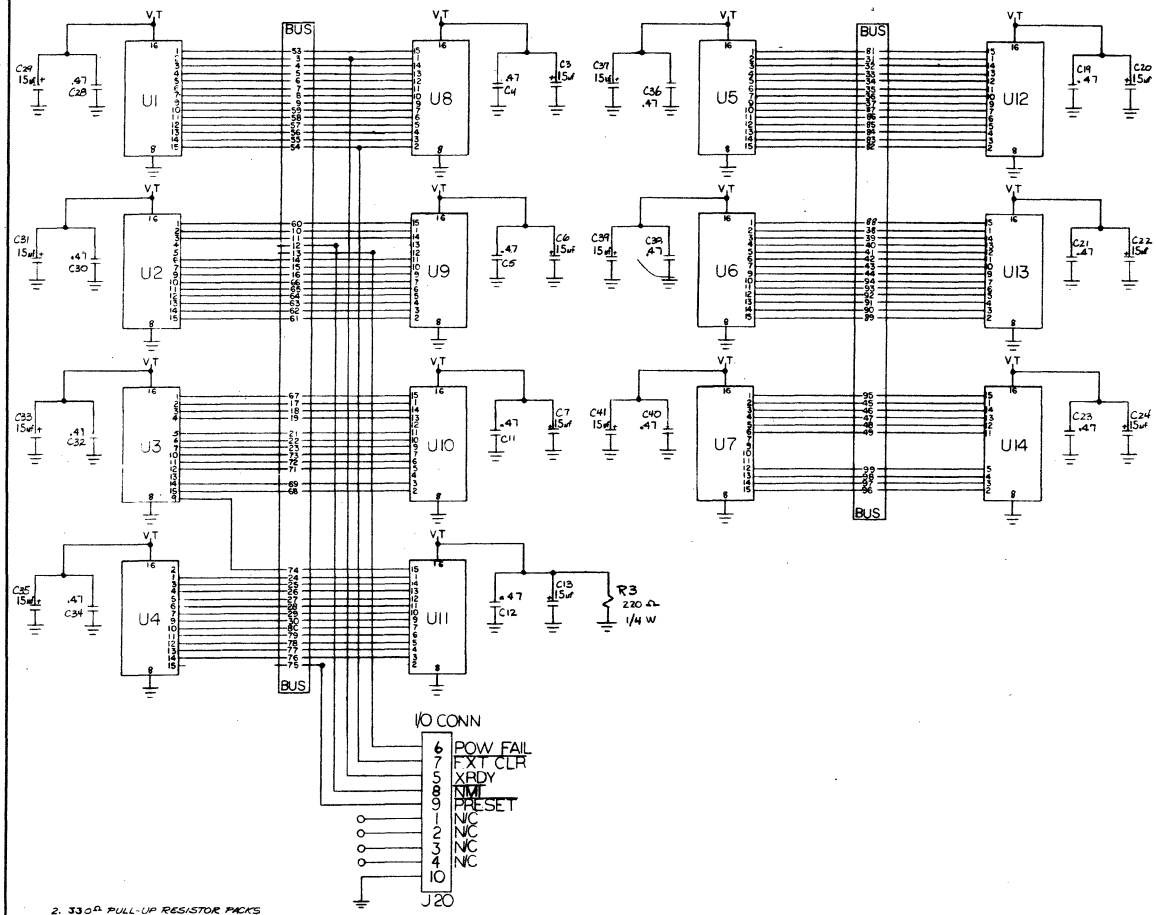
1. ALL CAPACITOR VALUES IN µf.

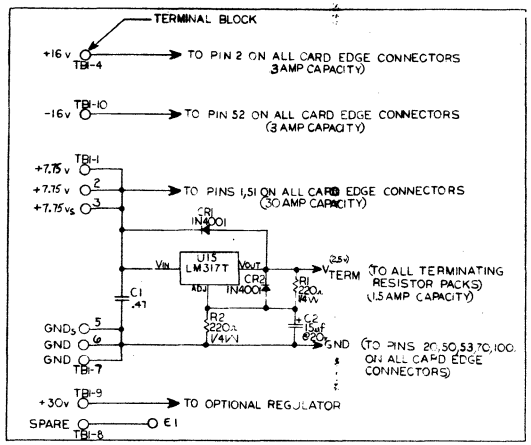
NOTES:

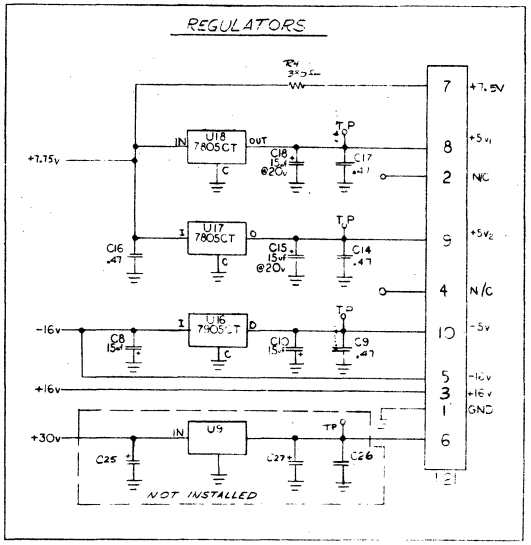
ALPHA MICRO SYSTEMS
IRVINE, CA 92714

REVISIONS	TITLE	SCALE	DRAWING NO
F01	[illegible]	—	DWL-[illegible]

REVISIONS				
REV	DESCRIPTION	DATE	APPROVED	COMP. REV.
B00	RELEASED PER EN000042	4-17-79		
C00	CHG PER EN000098	8-16-79		
C02	INCORP PER EN001133	10-31-79		
D00	REVISE PER EN001912	1-10-80		
D01	REVISE PER EN00317			C05
D02	REWORK PER EN00319			C04
E00	REVISE PER EN00364			D03, C06
E01	REVISE PER EN000751	2-9-82		







2. 330Ω PULL-UP RESISTOR PACKS INSTALLED AT U1-U14.

1. ALL CAPACITOR VALUES IN μF.

NOTES:

ALPHA MICRO SYSTEMS
IRVINE, CA 92714

REVISIONS	E01
DRAWN	MARK DANIELS 4.7.79
CHECKED	
APPROVED	

TITLE: SCHEMATIC S-100 BUS MOTHERBOARD

SCALE	PAGE	DRAWING NO
—	1/1	DWL-C0919-00

SECTION VII

PARTS LIST

.....ASSEMBLY..... NUMBER	DESCRIPTION	REC#	.....COMPONENT..... NUMBER	DESCRIPTION	ASSY. BIN#	QUANTITY
DWB3000300	CPU ASSY R/M W/FLOPPY 115V 60HZ	C00	794			
		00001	DWF2000000	BASE CPU		1.000
		00002	DWB2000100	REAR PANEL CPU R.M.		1.000
		00003	DWB2000202	CARD CAGE CPU 9 SLOT		1.000
		00004	PRB0002200	POWER SUPPLY 115/230V S-100 B.I.		1.000
		00005	DWB1001200	CABLE ASSY HARNESS CPU CHASSIS		1.000
		00006	PRB0002300	POWER SUPPLY 24VDC 2.4 AMPS B.I.		1.000
		00007	DWB1001300	CABLE ASSY FLOPPY		1.000
		00008	DWB1001600	CABLE ASSY, INT. AC REMOTE CONTROL		1.000
		00010	CBP0000215	PWR CORD AC 7.5FT SVT VNYL BLK UL		1.000
		00011	DWB2003800	PANEL, CPU CHASSIS, RACK MT W/FPY		1.000
		00012	DWF2000700	COVER CPU RACK MT		1.000
		00013	DWF2000600	SIDE CPU RACK MT R.H.		1.000
		00014	DWF2000601	SIDE CPU RACK MT L.H.		1.000
		00016	PRF0002100	SLIDE ASSY 24 IN R/H & L/H		1.000
		00017	HDM0002600	MOUNTING BRACKET SLIDE ASSY		2.000
		00019	HDB0000511	HARDWARE KIT, R/M, FLOPPY		1.000
		00020	DWL30001XX	LOGIC CABLING DIAGRAM CPU CHASSIS		0.000
		00021	LBL0002800	LABEL,CAUTION- DISCONNECT POWER		1.000
		00022	PRB0002000	FLOPPY DRIVE DOUBLE SIEDED 8" B.I.		2.000
		00026	DWF2004900	DRIVE MOUNTING BASE, UNIVERSAL		1.000
		00027	DWF2000500	PANEL FRONT CPU RACK MT		1.000
		00028	DWB1000305	CABLE ASSY 50COND FLAT (2 CDC)		1.000
		10000	NOTE CHECK	ITEM # ON MATRIX BEFORE ADDING ITEM		0.000

.....ASSEMBLY..... NUMBER	DESCRIPTION	.....COMPONENT..... REC#	NUMBER	DESCRIPTION	ASSY. BIN#	QUANTITY
DWB3000400	ASSY, CHAS, 19 SLOT, R/M 115V 60 HZ C00 794					
		00001	DWF2000000	BASE CPU		1.000
		00002	DWB2000100	REAR PANEL CPU R.M.		1.000
		00003	DWB2000200	CARD CAGE CPU 19 SLOT		1.000
		00004	PRB0002200	POWER SUPPLY 115/230V S-100 B.I.		1.000
		00005	DWB1001200	CABLE ASSY HARNESS CPU CHASSIS		1.000
		00008	DWB1001600	CABLE ASSY, INT. AC REMOTE CONTROL		1.000
		00010	CBP0000215	PWR CORD AC 7.5FT SVT VNYL BLK UL		1.000
		00011	DWB2003700	PANEL, CPU CHASSIS, R/M, W/O FLOPPY		1.000
		00012	DWF2000700	COVER CPU RACK MT		1.000
		00013	DWF2000600	SIDE CPU RACK MT R.H.		1.000
		00014	DWF2000601	SIDE CPU RACK MT L.H.		1.000
		00016	PRF0002100	SLIDE ASSY 24 IN R/H & L/H		1.000
		00017	HDM0002600	MOUNTING BRACKET SLIDE ASSY		2.000
		00019	HDB0000511	HARDWARE KIT, R/M, FLOPPY		1.000
		00020	DWL30001XX	LOGIC CABLING DIAGRAM CPU CHASSIS		0.000
		00021	LBL0002800	LABEL,CAUTION- DISCONNECT POWER		1.000
		10000	NOTE CHECK	ITEM # ON MATRIX BEFORE ADDING ITEM		0.000

.....ASSEMBLY.....		ASSY.	.....COMPONENT.....		ASSY.	
NUMBER	DESCRIPTION	REC#	NUMBER	DESCRIPTION	BIN#	QUANTITY
DWB3000500	CHASSIS ASSY TT W/FLPY 115V 60HZ	B00 794				
		00001	DWF2000000	BASE CPU		1.000
		00002	DWB2000100	REAR PANEL CPU R.M.		1.000
		00003	DWB2000202	CARD CAGE CPU 9 SLOT		1.000
		00004	PRB0002200	POWER SUPPLY 115/230V S-100 B.I.		1.000
		00005	DWB1001200	CABLE ASSY HARNESS CPU CHASSIS		1.000
		00006	PRB0002300	POWER SUPPLY 24VDC 2.4 AMPS B.I.		1.000
		00007	DWB1001300	CABLE ASSY FLOPPY		1.000
		00008	DWB1001600	CABLE ASSY, INT. AC REMOTE CONTROL		1.000
		00009	HDM0002000	RUBBER FEET .750IN SQ GREY		4.000
		00010	CBP0000215	PWR CORD AC 7.5FT SVT VNYL BLK UL		1.000
		00011	DWB2004800	PANEL ASSY, CPU W/FLOPPY DRIVES		1.000
		00012	DWF2000400	COVER CPU TABLETOP		1.000
		00019	HDB0000501	HARDWARE KIT, TT, FLOPPY		1.000
		00020	DWL30001XX	LOGIC CABLING DIAGRAM CPU CHASSIS		0.000
		00022	PRB0002000	FLOPPY DRIVE DOUBLE SIEDED 8" B.I.		2.000
		00026	DWF2004900	DRIVE MOUNTING BASE, UNIVERSAL		1.000
		00027	DWF2000500	PANEL FRONT CPU RACK MT		1.000
		00028	DWB1000305	CABLE ASSY 50COND FLAT (2 CDC)		1.000
		10000	NOTE CHECK	ITEM # ON MATRIX BEFORE ADDING ITEM		0.000

.....ASSEMBLY..... NUMBER	DESCRIPTION	.....COMPONENT..... REC#	NUMBER	DESCRIPTION	ASSY. BIN#	QUANTITY
DWB3000600	CHASSIS ASSY TT W/O FLPY 115V 60HZ B00 794					
		00001	DWF2000000	BASE CPU		1.000
		00002	DWB2000100	REAR PANEL CPU R.M.		1.000
		00003	DWB2000200	CARD CAGE CPU 19 SLOT		1.000
		00004	PRB0002200	POWER SUPPLY 115/230V S-100 B.I.		1.000
		00005	DWB1001200	CABLE ASSY HARNESS CPU CHASSIS		1.000
		00008	DWB1001600	CABLE ASSY, INT. AC REMOTE CONTROL		1.000
		00009	HDM0002000	RUBBER FEET .750IN SQ GREY		4.000
		00010	CBP0000215	PWR CORD AC 7.5FT SVT VNYL BLK UL		1.000
		00011	DWB2004700	PANEL ASSY, CPU W/O FLOPPY DR.		1.000
		00012	DWF2000400	COVER CPU TABLETOP		1.000
		00019	HDB0000501	HARDWARE KIT, TT, FLOPPY		1.000
		00020	DWL30001XX	LOGIC CABLING DIAGRAM CPU CHASSIS		0.000
		10000	NOTE CHECK	ITEM # ON MATRIX BEFORE ADDING ITEM		0.000

.....ASSEMBLY..... NUMBER	DESCRIPTION	REC#	.....COMPONENT..... NUMBER	DESCRIPTION	ASSY. BIN#	QUANTITY
DWB0090900	ASSY MOTHERBOARD 9 SLOT S-100 BUS F01 751					
		00001	DWF0090900	PCB MOTHERBOARD S-100 BUS 9 SLOT		1.000
		00002	CNP0000500	CONN,PC EDGE,50 POS,100 CONTACTS		9.000
		00003	CNA0000400	TERMINAL BLOCK		1.000
		00005	CNR0000401	CONN PC MOUNT 10 PIN MALE		2.000
		00006	ICL0031700	IC REGULATOR ADJUSTABLE POSITIVE		1.000
		00007	DIO0400100	DIODE		2.000
		00008	RS20022100	RESISTOR 220 OHM 1/4W 5% CAR		3.000
		00009	CPN0047401	CAPACITOR .47 UF		12.000
		00010	CPP0015601	CAPACITOR 15 UF 20V		12.000
		00011	HDM0000200	HEAT SINK .700WI .375HT DUAL		1.000
		00012	RSN0000500	RESISTOR NETWORK 16 PIN 220 OHM		7.000
		00013	HDM0000700	HEAT SINK .750WI .375HT .750LG		2.000
		00014	ICL0780500	IC REGULATOR + 5V		2.000
		00015	ICL0790500	IC REGULATOR - 5V		1.000
		00017	HDM0000400	MICA PAD TO 220		2.000
		00018	HDS0063203	SCREW 6-32X.75 NYL (SEE HDS1060606)	F/S	2.000
		00019	HDS1050606	SCREW,PHMS,SS,PH RECESS, 6-32X3/8	F/S	2.000
		00021	HDN1000006	NUT HEX 6-32 KEP INT/EXT CAD STL	F/S	4.000
		00024	RS20033100	RESISTOR 330 OHM 1/4W 5% CAR		1.000
		00025	DWL0090900	LOGIC 9 SLOT MOTHERBOARD		0.000
		00026	DWT0090900	TEST SPEC 9 SLOT MOTHERBOARD		0.000
		00027	LBL0001814	LABEL PCB SERIAL I.D. AM-909		1.000

.....ASSEMBLY.....		.....COMPONENT.....			ASSY.	
NUMBER	DESCRIPTION	REC#	NUMBER	DESCRIPTION	BIN#	QUANTITY
MB0091900	ASSY MOTHERBOARD 19 SLOT S-100 BUS E01 751					
		00001	DWF0091900	PCB MOTHERBOARD S-100 BUS 19 SLOT		1.000
		00002	CNP0000500	CONN,PC EDGE,50 POS,100 CONTACTS		19.000
		00003	CNA0000400	TERMINAL BLOCK		1.000
		00005	CNR0000401	CONN PC MOUNT 10 PIN MALE		2.000
		00006	ICL0031700	IC REGULATOR ADJUSTABLE POSITIVE		1.000
		00007	DIO0400100	DIODE		2.000
		00008	RS20022100	RESISTOR 220 OHM 1/4W 5% CAR		3.000
		00009	CPN0047401	CAPACITOR .47 UF		19.000
		00010	CPP0015601	CAPACITOR 15 UF 20V		19.000
		00011	HDM0000200	HEAT SINK .700WI .375HT DUAL		1.000
		00012	RSN0001300	RES PACK 16PIN DIP 330 OHM CER		14.000
		00013	HDM0000700	HEAT SINK .750WI .375HT .750LG		2.000
		00014	ICL0780500	IC REGULATOR + 5V		2.000
		00015	ICL0790500	IC REGULATOR - 5V		1.000
		00018	HDS1050606	SCREW,PHMS,SS,PH RECESS, 6-32X3/8	F/S	2.000
		00019	HDN1000006	NUT HEX 6-32 KEP INT/EXT CAD STL	F/S	4.000
		00021	HDM0000400	MICA PAD TO 220		2.000
		00022	HDS0063203	SCREW 6-32X.75 NYL (SEE HDS1060606)	F/S	2.000
		00024	RS20033100	RESISTOR 330 OHM 1/4W 5% CAR		1.000
		00025	DWL0091900	LOGIC MOTHERBOARD 19 SLOT		0.000
		00026	DWT0091900	TEST SPEC 19 SLOT MOTHERBOARD		0.000
		00028	LBL0001815	LABEL PCB SERIAL I.D. AM-919		1.000

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