


REV.	ZONE	ECO #	REVISION	APPD
A		P109	INITIAL RELEASE	
B		P181	Revised to include Monitor CRT and Mechanical Equivalency	

This assembly meets Apple Computer Specification #062-0074, and includes the equivalent circuitry for Apple assy #656-4106, "PCB, Assy, Monitor", Tested, is mechanically equivalent to #656-5102, "Subassy, Power Supply", and is purchased only from U.S. ASTEC as ASTEC part number AA11771.

699-0059-B 1 1


<b>TOLERANCES</b> UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.		DRAWN BY Jamie Frederick 8-81	DATE 8-81	 <b>apple computer inc.</b>
DECIMALS    .X ± _____ .XX ± _____ .XXX ± _____	CHECKED BY <i>[Signature]</i>	DATE 3-30-82	TITLE Purchased Assembly Power Supply, PROFILE	
ANGLES        XX.X ± _____ FRACTIONS    ± _____ DIMENSIONS IN PARENTHESES ARE IN MILLIMETERS.	APPROVED BY <i>[Signature]</i>	DATE 3/31/81	SIZE    DRAWING NUMBER A                    699-0059-B	
MATERIAL: _____	RELEASED BY <i>[Signature]</i>	DATE 9/1/81	SCALE: _____    SHEET 1 OF 1	
NEXT ASSY.    FINISH: _____	SCALE: _____    SHEET 1 OF 1			

A CLASS "A"

REV.	ZONE	ECO #	REVISION	APPD
A		806	INITIAL RELEASE	
B		P120	Deleted pg. 4, AC Line Monitor Elec. Req.; also pgs. 7-9, dwgs & schematic	
C		P171	Dimension change (page 6) 3.75 was 3.65	

### 1.0 ELECTRICAL CHARACTERISTICS

- 1.1 INPUT VOLTAGE: 115 VAC or 230 VAC  
Selected by jumper on pcb.  
47 to 63 Hz
- 1.2 OPERATING RANGE: 90 to 135 VAC RMS  
180 to 270 VAC RMS
- 1.3 CONVERSION EFFICIENCY: 75% minimum acceptable; with 78% as a target in production.
- 1.4 DELIVERED POWER: 30 watts steady state.  
55 watts starting for a minimum of 14 seconds.
- 1.5 OUTPUT VOLTAGES AND CURRENTS:
- $V_{out_1}$  +12 VDC  $\pm$  6% 1.5 Adc steady state and 3.5 to 4.0 amps for 10 - 14 seconds.
- $V_{out_2}$  +5 VDC  $\pm$  2% 2.0 Adc continuous.
- $V_{out_3}$  -12 VDC  $\pm$  6% 0.1 Adc continuous.
- 1.6 RIPPLE AND NOISE CONTENT; OUTPUT: 50MVP-P on +5VDC; 10CIV P-P, +12 VDC. 1Hz to 10 MHz.

<b>TOLERANCES</b> UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.  DECIMALS .X $\pm$ _____ .XX $\pm$ _____ .XXX $\pm$ _____ ANGLES XX.X $\pm$ _____ FRACTIONS $\pm$ _____ DIMENSIONS IN PARENTHESIS ARE IN MILLIMETERS.	DRAWN BY <i>[Signature]</i>	DATE 7-781	 <b>apple computer inc.</b>	
	CHECKED BY <i>[Signature]</i>	DATE 7-81		TITLE  POWER SUPPLY, PROFILE
	APPROVED BY <i>[Signature]</i>	DATE 7/7/81		
	RELEASED BY <i>[Signature]</i>	DATE 7/7/81		SIZE A
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CLASS "A"

- 1.7 OPERATING TEMPERATURE: 0 to +70 °C (Ambient)
- 1.8 STORAGE TEMPERATURE: -20 to +85°C.
- 1.9 PROTECTION CIRCUITS: The input must be protected by a fast blow fuse and a thermister inrush current limiter.

The +5 volts d.c. TTL voltage must be protected from over voltage output by means of an active crowbar.

All three d.c. outputs must be short circuit capable for an indefinite period.

- 1.9.1 HOLD UP TIME: 20 msec nominal at 30 watts load.
- 1.9.2 TEMPERATURE COEFFICIENT: 0.02%.
- 1.9.3 AC ISOLATION: to safety ground and A.C. input to output 4.5KVDC
- 1.9.4 OUTPUT TO SAFETY GROUND: 0.5KVDC
- 1.9.5 INSULATION AC TO GROUND: 50 MEG ohm nominal.
- 1.9.6 LEAKAGE CURRENT: 240 VAC input  
IRMS  $\approx$  3.5 ma RMS
- 1.9.7 LINE CONDUCTED EMI: FCC 20780 limits. See attached specifications
- 1.9.8 SAFETY APPROVALS: UL and CSA required.  
VDE required after 9/81.

## 2.0 MECHANICAL REQUIREMENTS:

The supply shall conform to attached envelope.

- 2.1 THERMAL: The power supply shall be capable of operating under all conditions of line and load at 0-70°C continuously.
- 2.2 STORAGE TEMPERATURE: -20 to +85°C.
- 2.3 HUMIDITY: Operating: 95% RH @ 35°C.  
Storage: 95% RH @ 50°C.
- 2.4 VIBRATION: 10 to 500 Hz double sweep at 1 active per minute with pk-pk excursion of 1.5mm or 10g acceleration.
- 2.5 RANDOM DROP: 45 min. at a rate of 5 RPM.
- 2.6 BURN IN: A minimum 24 hour burn in at low line, full DC load at 70°C is required. Vendor will burn in all units.



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2.7 **SERIALIZATION:** All supplies shall have a serial number affixed and recorded so that test and failure records can be tracked throughout the life of the product.

2.8 **SAFETY REQUIREMENTS:** UL 478  
UL 1201  
CSA 22.2 No. 154  
VDE after 9/81

2.9 **INDUCTORS**

No solenoidal filter inductors should be used in this product.

2.95 **INPUT AND OUTPUT CONNECTOR:** Molex Connector Pin Designation.

**A.C. Input**

1. AC Neutral
2. Key
3. AC Line

**D.C. Connector**

1. Reset Monitor Output
2. Key
3. -12V
4. +12V
5. +12V
6. Common
7. "
8. "
9. "
10. Common
11. +5V
12. +5V
13. +5V

**Mating Molex Connectors:**

DC P/N 09-50-3131

AC P/N 09-50-3030

The output connector will be a single, in-line connector combining the above two part numbers.



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**SPECIFICATION: ELECTROMAGNETIC COMPATIBILITY**

1. Emissions: Applicable assemblies, subassemblies and peripheral devices shall be 6 dB below limits of (1) Federal Communications Commission (FCC) Part 15 Sections 15.830 (radiation limit) and 15.832 (conduction limit) for units operated from 60 Hz line voltage and (2) VDE 0871/6.78 section 3.2.1 (conducted) and sections 3.2.2 and 3.2.3 (radiated) for units operated from 50 Hz line voltage. Those units rated 50/60 Hz shall meet both requirements.

The upper frequency limit for both FCC and VDE conducted emissions limits is 30 MHz. However, due to radiated emissions from the AC power cord the Apple conducted limit is extended to 60 MHz.

For convenience, limit amplitudes, less 6 dB, are reproduced herein. (Tabulated limits are Apple Computer EMI limits; FCC and VDE limits are 6 dB higher). However, the in-effect version of FCC part 15 or VDE 0871 are the binding documents.

**RADIATED**

	Frequency Range (MHz)	Field (uV/m)	Strengths (dB uV)	Distance (meters)
1. FCC Part 15	30-88	50	34	3
	88-216	75	38	3
	216-1,000	100	40	3
2. VDE 0871	0.01-30	20	26	30
	30-470	20	26	10
	470-1,000	80	38	10

**CONDUCTED**


	Frequency Range (MHz)	Voltage (uV)	(dB uV)	LISN Impedance
1. FCC Part 15	0.45-60	125	42	50
2. VDE 0871/6.78	0.01-0.15	*		150
	0.15-0.50	200	46	
	0.50-60	100	40	

\*straight line from 10 kHz (3.5mV, 71 dB V) to 150 kHz (300uV, 50 dBuV)

Test and measurement equipment and procedures shall be as specified in applicable specifications. Final acceptance tests are performed with assembly or peripheral installed in system intended to be marketed with; such system to consist of the basic Apple Computer (II, III, etc.) and full memory installed and as many peripheral devices (disk drives, printer, monitors) and optional components (language card, serial card, parallel card, etc.) as possible to simulate worst-case operating conditions as closely as possible. Qualification tests with "remote exercisers", generators or other manufacturer Personal CPUs are unacceptable.

**II. SUSCEPTIBILITY (to be determined).**

Under consideration: The device shall not have uncorrectable data errors when subjected to the following field strengths or voltages - Irradiated: 0.01-1,000 MHz, 5V/m (100% modulated with 1 kHz square wave).

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II. SUSCEPTIBILITY (to be determined) - continued.

- Transient Line Noise:\*\*
1. Class A products: 400V pulse with 100 nano-second width and 10 nsec risetime.
  2. Class B products: 200V pulse (same characteristics)

Conducted RF: 0.01-100 MHz: 3V rms.

\*\*no soft errors allowed.



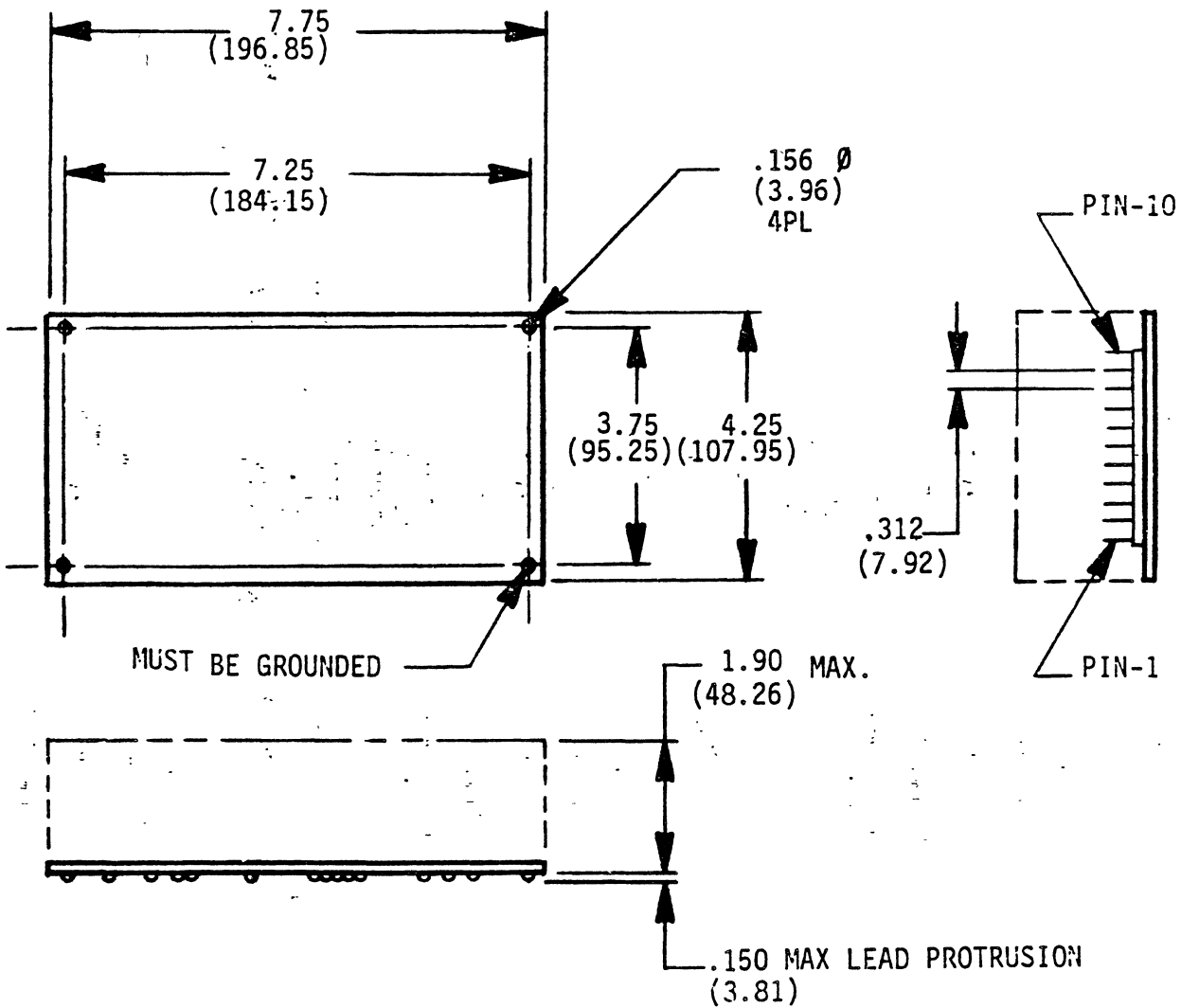
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