

CTL Modular One Computer



Front view

The switches are labelled, from the top; Power, Remote, On-Line, Multiplexer, Operational and Load

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## **1. Manufacturers Details**

Details taken from the Manufacturers label on the back of the unit.

Computer Technology Limited.

Eaton Road

Hemel Hempstead

Hertfordshire

England

Type; A6147

Description; 1.14 LOGIC ASSEMBLY

Serial No. 00035

Made in England

Details taken from the power door on the front of the unit.

Power Door 1.072

Type 1480/9 conv. 6149

Used on 1.13/1.14

The label includes a list of board types and their positions on the power door.

## **2. Construction**

The computer cabinet is built around a plastic coated cast frame in the centre of the machine. The frame forms the support for the backplane circuit board which is 16 inches wide and 20 inches high.

The hinged door of the cabinet contains the D.C power supply. With the door closed the power supply occupies the front part of the cabinet. The rear of the cabinet contains the processor boards and memory boards which plug into the backplane. The sides and top panels are made of sheet steel. The back panel is also made of sheet steel and held in place by plastic clips to allow access to the processor boards.

The base of the machine contains the mains voltage control circuits and a cooling fan. Earlier models would have relied on magnetic core store for memory and these would have held 16k of memory in a unit of similar size. This computer has 16K of semiconductor RAM on 8 boards.

The cabinet must have been fixed into a rack otherwise opening the power door would have caused the unit to tip forwards because of the weight of the power supply.

For maintenance purposes access would have been required to the front and the rear of the machine.

## **3. History**

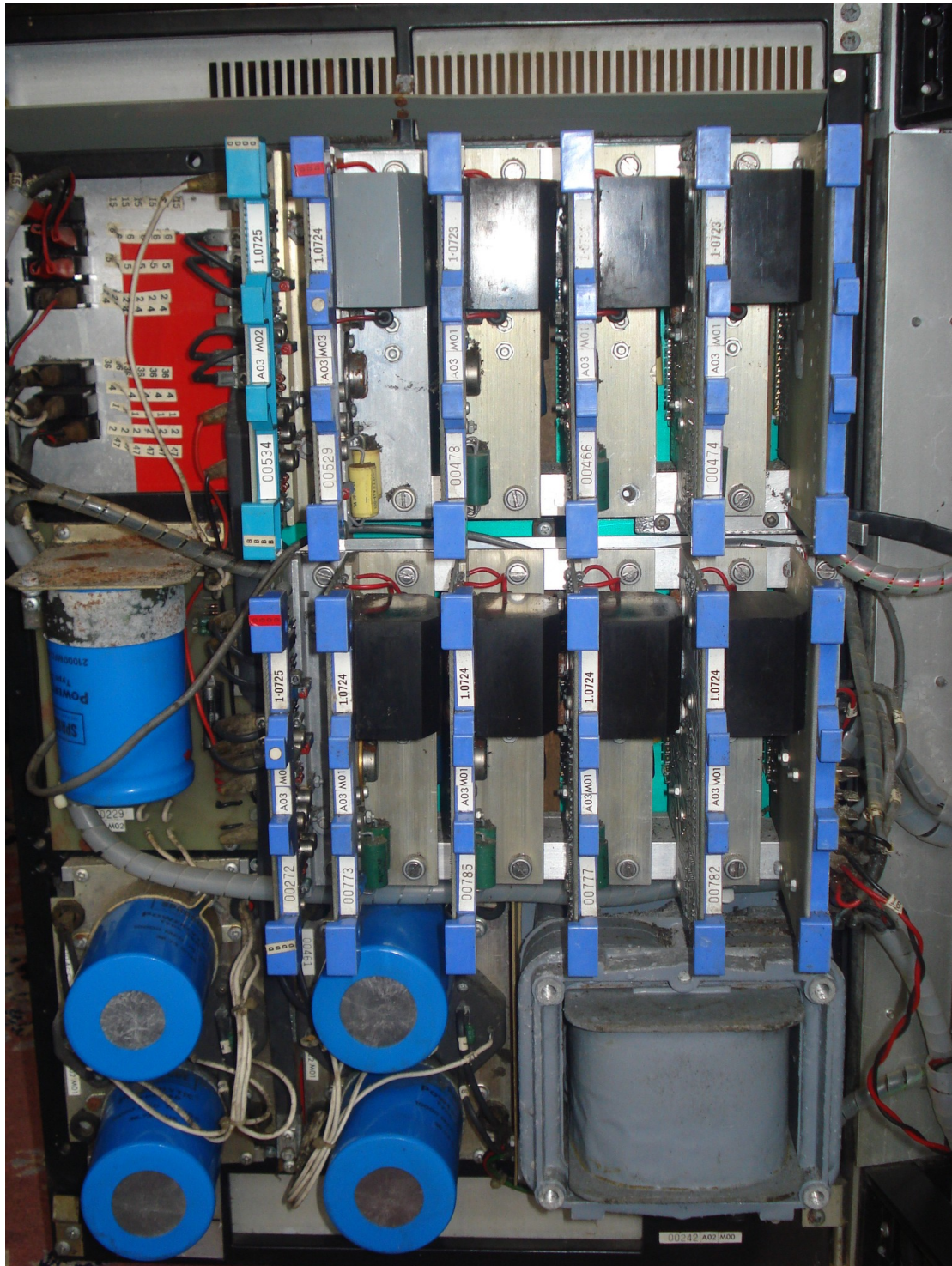
According to Wikipedia; Computer Technology Limited was started in 1965 by Iann Barron and the first Modular one was offered for sale in 1969. This computer was bought by the National Physical Laboratory (some time in the 70's) and used on the NPL packet switching network and the Scrapbook project (see video links here <http://www.npl.co.uk/mathematics-scientific-computing/history-of-computing/>).



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In 1980 NPL disposed of its Modular one computers and this one was bought by Patrick Sugrue together with two teletypes and a high speed paper tape reader. It was used as a home computer up to 1982,

## 4. The Power Door

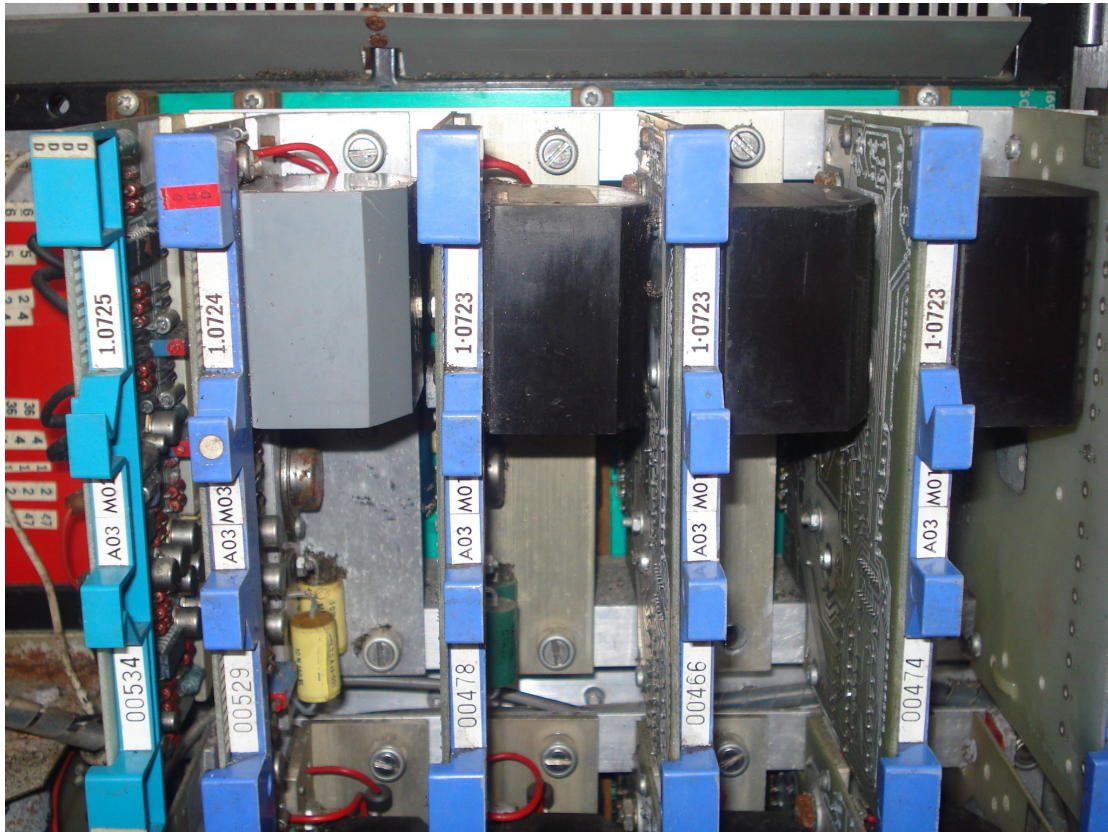


Power door regulator boards plug into a backplane that is obscured by the heat sinks. The power supply is modular and a range of supplies can be fitted, depending on the application. I'm not certain about the voltages provided by the 1.702 Power door I

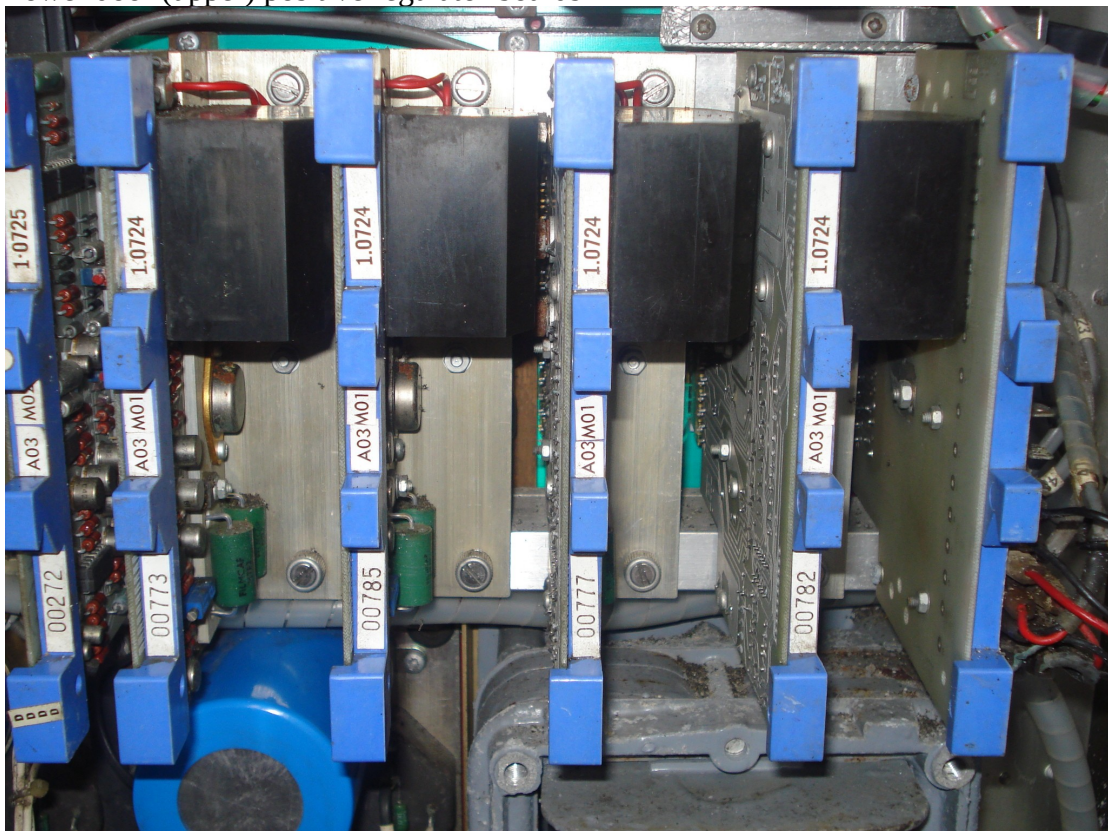


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only have information about the 1.701 Power door used on the 1.11. However -5.2 volts would be required for the Emitter Coupled Logic devices used on the processor and +5 volts would be required for the memory cards which use TTL technology.



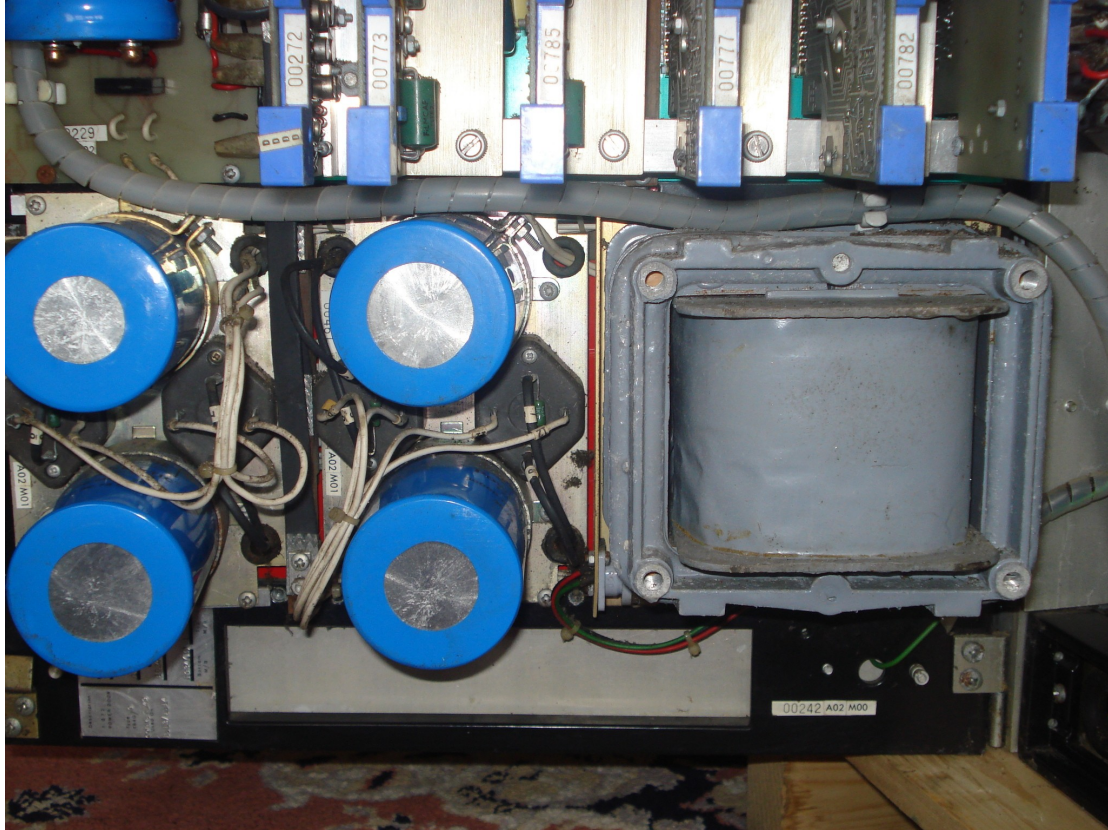
Power door (upper) positive regulator boards





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Power door (centre) negative regulator boards.



Lower power door, the label can be seen on the lower left corner.



## 5. Processor

The Processor boards are accessed from the rear of the cabinet



The Processor boards are at the top and consist of double length boards. The single length boards at the bottom are the memory cards, 2K each. The memory controller 1.26A is a triple length card that occupies the leftmost position of the processor cards and the centre position of the memory cards.

The black coated frame can be seen supporting the backplane. There is also a serial number sticker on the top of the backplane 00035. The grey trailing wire is the



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connection to the Teletype, the black wire goes to the Paper Tape reader interface card.





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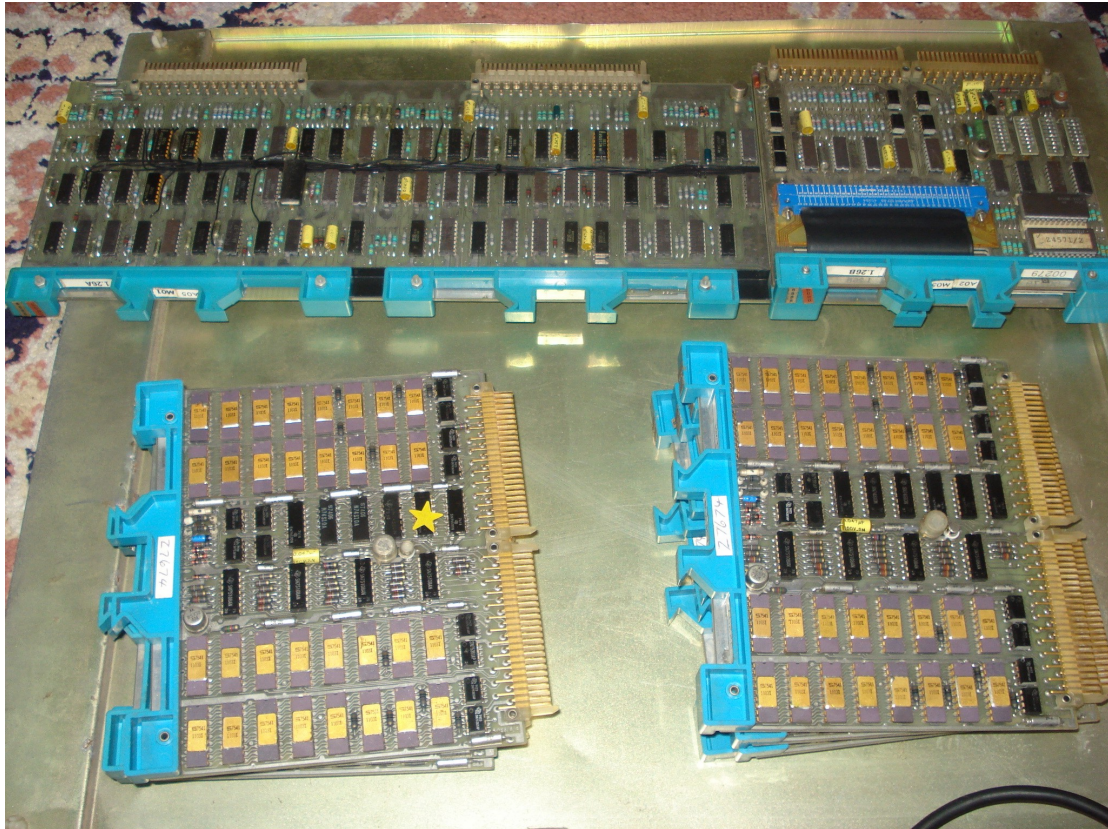
## Processor boards

The processor uses ECL technology operating at -5.2 volts.

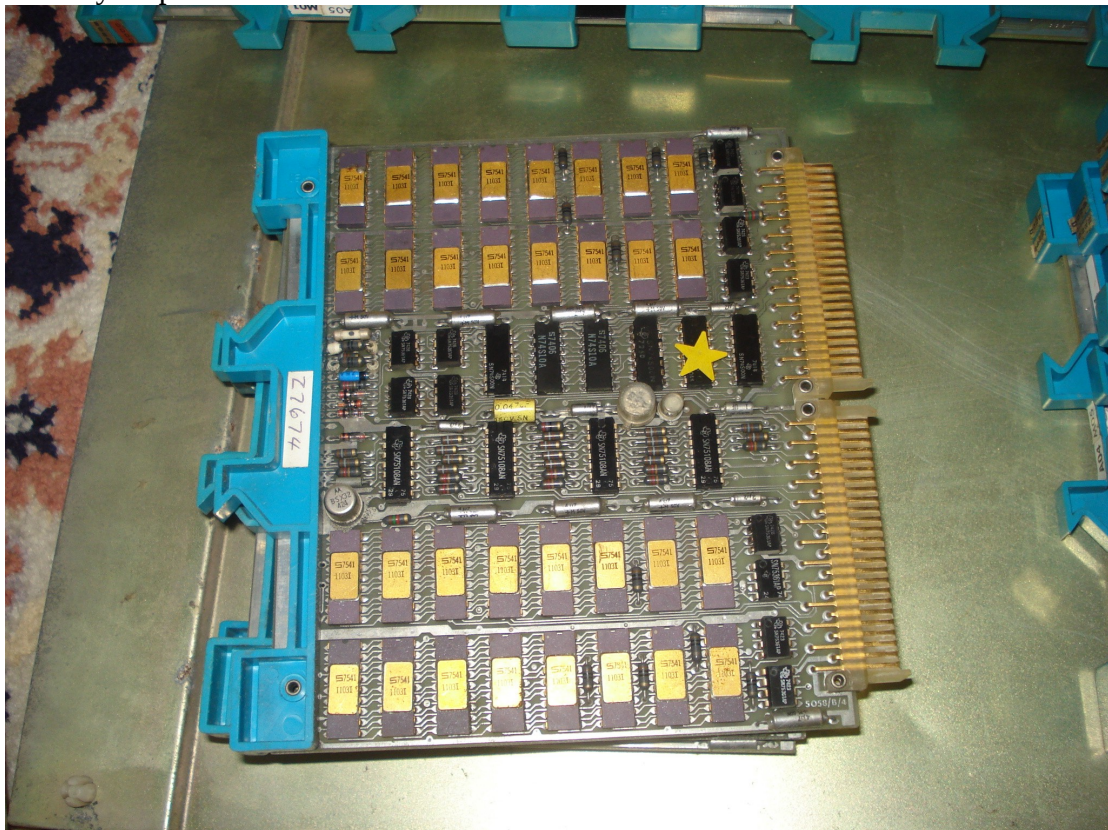
Type	Archive & Mod No.	Serial number	Description
1.11A	A05 M01	0503	Register Board bits 14 & 15
1.11B	A05 M00	00507	Register Board bits 12 & 13
1.11C	A05 M00	00504	Register Board bits 10 & 11
1.11D	A04 M01	00500	Register Board bits 8 & 9
1.11E	A05 M01	00498	Register Board bits 6 & 7
1.11F	A05 M01	00501	Register Board bits 4 & 5
1.11G	A05 M00	00497	Register Board bits 2 & 3
1.11H	A04 M00	00498	Register Board bits 0 & 1
1.11J	A05 M01	00505	Control Board, Complex Arithmetic
1.11K	A07 M03	00496	Control Board, Instruction
1.11L	A05 M02	00519	Control Board, Clock
1.11M	A06 M00	00481	Control Board, Register Operation
1.11N	A07 M01	00517	Control Board, Simple Arithmetic
1.11P	A06 M03	00514	Multiplexer Board
1.11Q	A01 M00	00056	Processor Interface Board
1.11R	A05 M02	00504	Control Board, Program Change
1.31A	A06 M06	00412	Teletype Interface
1.32A	A03 M00	00405	Paper Tape reader interface
1.26A	A05 M01	00285	Semiconductor memory controller
1.26B		00279	Memory Controller sub board fixed to the 1.26A
1.261		02206	2K Memory card
1.261		01837	2K Memory card
1.261		02247	2K Memory card
1.261		02204	2K Memory card
1.261		02214	2K Memory card
1.261		02213	2K Memory card
1.261		02208	2K Memory card
1.261		02207	2K Memory card



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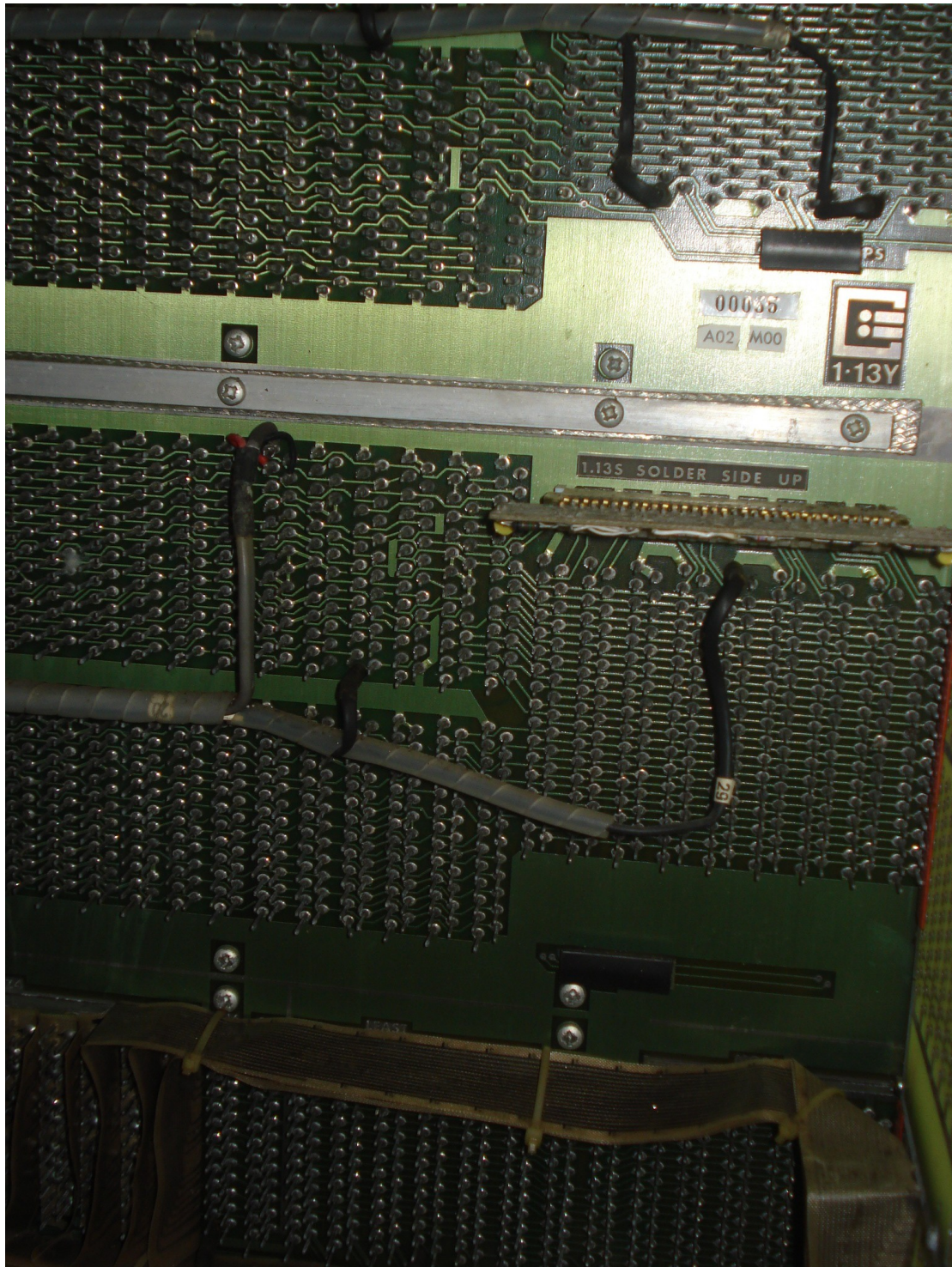


A view showing the semiconductor memory controller and the memory boards, note the 1.26B sub board fixed to the 1.26A board. The memory boards use the 1103 memory chips which became available in 1970.



The 1.261 Memory card, note the use of TTL devices as opposed to ECL technology used in the processor.



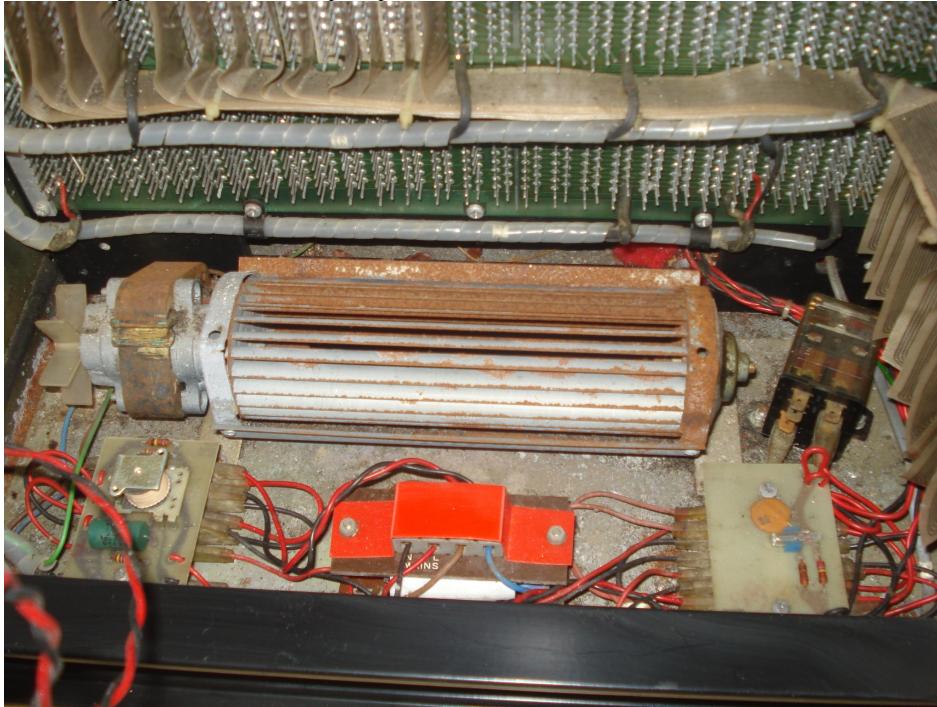


Rear view of the backplane with the power door open.



## 6. The Base

The Base of the cabinet contains the cooling fan and some mains voltage circuitry for power switching and control of peripheral devices.



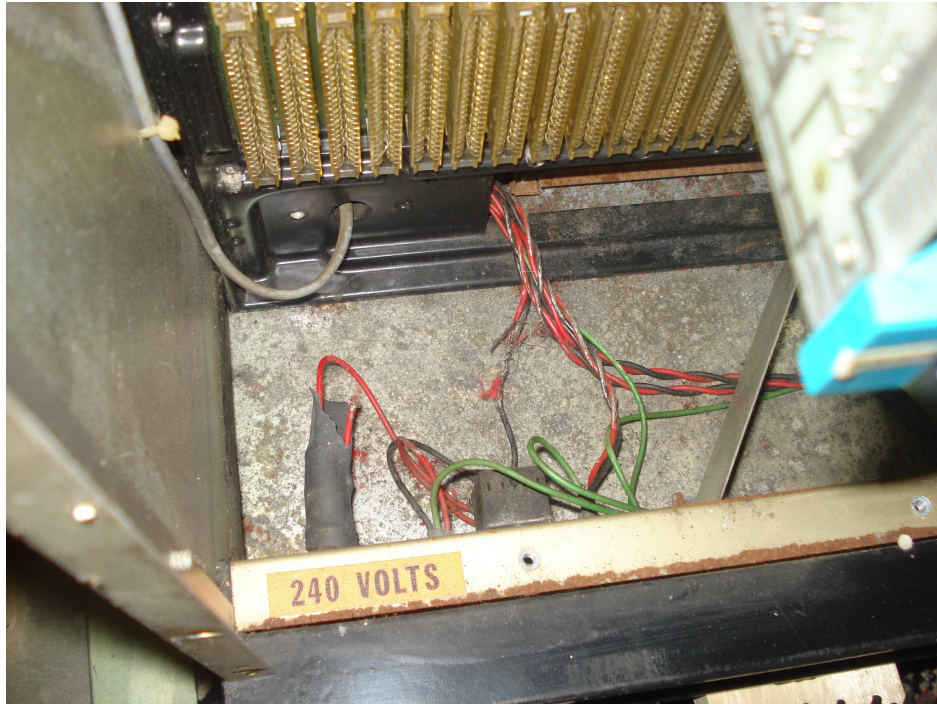
The front section of the base with the power door open.



The rear view with integral mouse nest, No doubt they were waiting for the answer to the ultimate question.



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Never get a mouse to wire your computer

The lower back panel



Mains fuse, switch and power input.





Remote control outputs (Mains voltage)



## 7. The Side Plane

The right hand side of the cabinet has a second back plane, perhaps for connecting to other devices such as core store memory?

