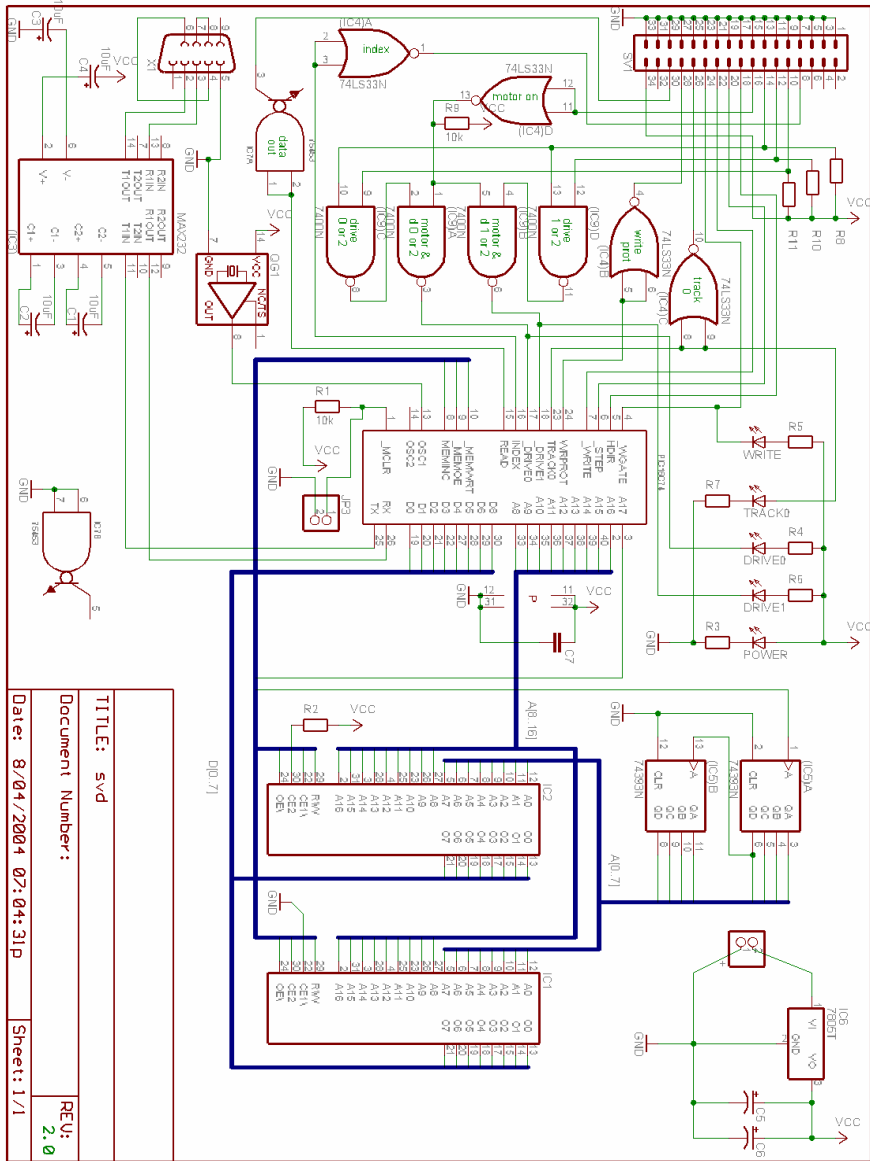


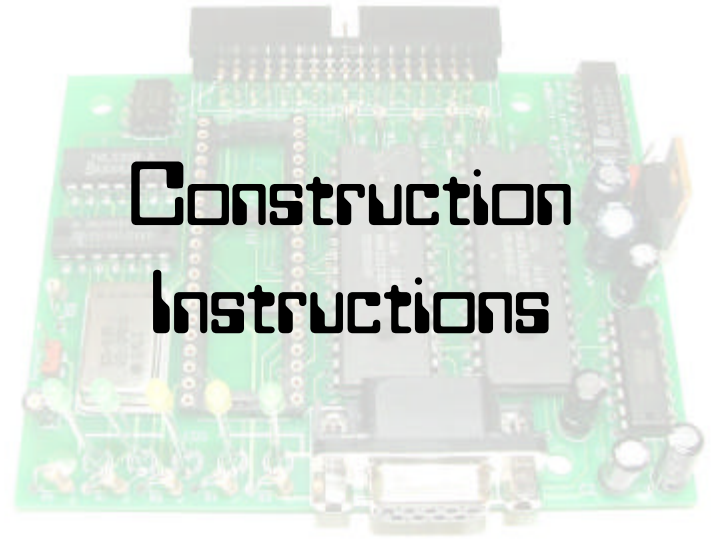
Schematic



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Semi-Virtual Diskette SVD

Construction Instructions



PCB version 2.0
September 2004
Eric J. Rothfus

Bring the two halves together, taking care that the LEDs go into their holes.

Use the two screws left over from the case, securing opposite corners from the bottom of the case.

DONE !



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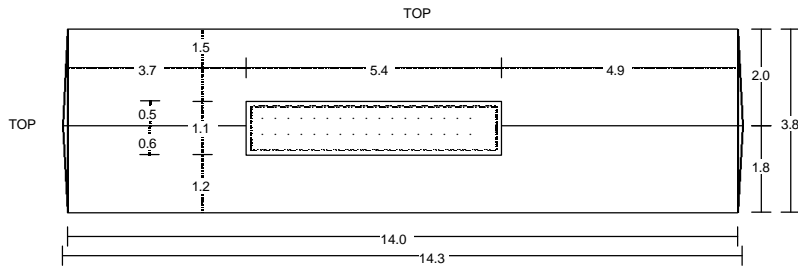
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Now cut the notches in the case for the two connectors. Try to get them to line up as well as possible. All measurements below are in cm.

NOTE – that the measurements below are NOT to the “pointy” end of the case. Instead they are to the square edge...as if the end of the case was square.

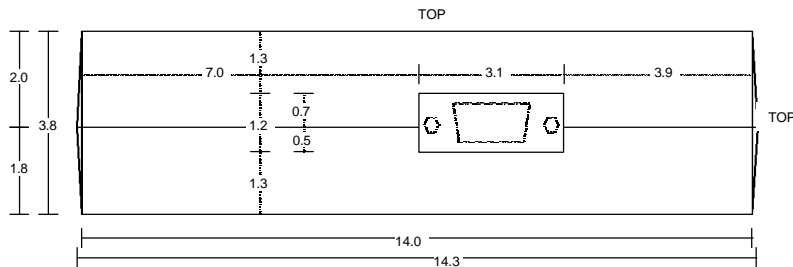
Cut the notch for the 34-pin connector on the left side of the top of the case.

Cut the notch for the 34-pin connector on the left side of the bottom of the case.



Cut the notch for the RS232 DB-9 connector on the right side of the top of the case.

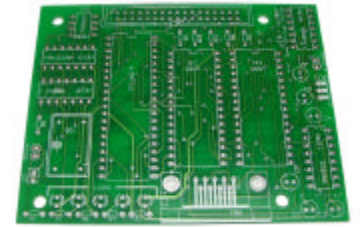
Cut a notch for the DB-9 connector on the right side of the bottom of the case.



Parts List

Printed Circuit Board (PCB)

This is a double-sided PCB with solder-mask on both sides, and plated-through holes. All components are mounted on the “top” side (the side with the silk-screen). You only need to solder on the bottom of the board.



Parts with “wires”

R1-2, 8-11 – (6) 10k – 15k ohm resistors. These are pull-ups so their exact value isn’t critical to the function of the circuit.

R3-7 – (5) 470 ohm resistors – for the LEDs

C1-4 – (4) 10 uF capacitors

C5-6 – (2) 47 uF capacitors

C7 – (1) 1 uF capacitor. This is a filter capacitor and may actually range between .1 uF and 5 uF... just look for the one capacitor that is different.

LEDs – (5) 2 yellow, and 3 green

IC6 – (1) 7805 5-volt regulator

“Small” ICs

IC9 – (1) 7400 quad NAND

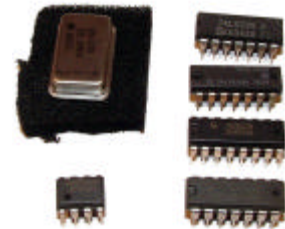
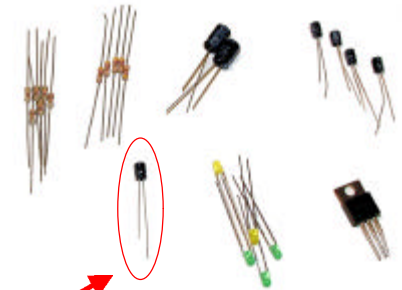
IC5 – (1) 74393 dual counter

IC4 – (1) 7433 quad OC NOR

IC7 – (1) 75452 line driver – note that the schematic and PCB shows this as a 75453

IC3 – (1) MAX232 – this may be of different brands, but always MAX232 compatible

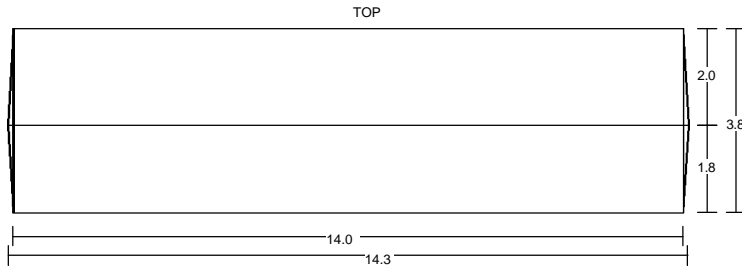
QG1 – (1) 20MHz oscillator



Case Construction

The SVD PCB was created to fit the SERPAC #251 case, included in the complete SVD kit. Outside dimensions of this case are as follows (in cm):

To allow mounting of the PCB within this case, holes must be drilled for the LEDs, the power switch, the reset switch, and the power jack. Also, two rectangular holes must be "machined" into each side of the case.



TIP

Drilling the holes for the LEDs, power switch, reset switch, and power jack can be done rather informally.

The best method I've found is to mount the SVD label on the top of the case, and drill the holes where they are indicated by the label. This assures good alignment for both the internal LEDs and the label.



TIP

It will work much better for the Reset and Power switches if you chose the best end of the case. One end of the top half of the case has tabs where the holes for the switches go. The other end doesn't. Find the best end, you'll thank me later.



Case

The case is a SERPAC #251 without the battery holder option. The top is smooth, just perfect for mounting the provided sticky-bottom SVD label.

Note that you'll need to drill the case for the switches, power jack, and LEDs. Further, you'll need to cut appropriate holes for the 34-pin header and RS232 jack. Instructions are provided below.



FloppyConnectors

The 34-pin header on the SVD must be connected to either the "terminated" edge-card adapter or the "un-terminated" edge-card adapter.

IMPORTANT NOTE – you must use one of these provided adapters! Do **not** plug something directly into the 34-pin header in that + 5V is supplied on the 34-pin header and would undoubtedly damage equipment directly connected to it.

In addition to the edge-card adapters, a 34-pin ribbon-cable connector is supplied to make using the SVD easier.



Power and Cables

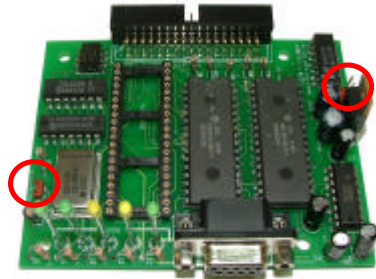
Included with the SVD is a 9-pin serial cable.

Also included is a 9 to 12 volt power supply. These were procured from the local GoodWill Computer Store for very low cost (\$2.00 for the cable and \$5.00 for the power supply). They are included because they are necessary and were so cheap. □ (as opposed to you trying to get them yourself).

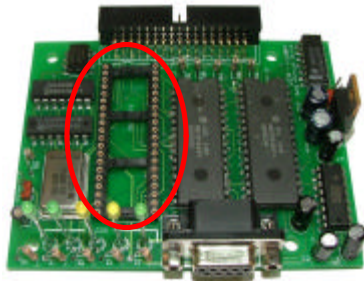
One important note – with the 9-volt supply, the voltage regulator gets warm. With the 12-volt supply, it gets rather hot...it is not really a *problem*, but you may want to put a heat-sink on it (not included, sorry). Your call.



Mount two 2-pin headers, one for power and the other for reset.



Insert the PIC (IC8) into the socket. Be VERY careful not to allow the pins to bend while inserting it.



Construction Overview



IMPORTANT

NOTE: Construction of the SVD is easy for an experienced hobbyist, however, there are few important instructions in this document that you should be aware of. Please read this document to ensure that you catch them!

These important instructions will be highlighted in a box like this so they'll be hard to miss.



TIP

TIP: These instructions contain some useful tips for a successful construction of the SVD. These tips can safely be ignored, though may be helpful! These tips will be highlighted in a box like this so that they'll be hard to miss.

There are 3 main tasks for constructing the SVD:

PCB Construction – this section details populating the PCB. This includes soldering ICs and other components to the board. It also includes preparing the external connectors.

Case Construction – this section shows you how to prepare the case that will hold the PCB. It also shows how to mount the switches and power jack to the case along with their wiring.

Final Assembly – a very short section showing how to put the whole thing together.