

Re: Regulated 9 Volt DC Power Supply

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- *From:* Jonathan Kirwan <jkirwan@xxxxxxxxxxxxxxxx>
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On 28 Dec 2007 21:34:06 GMT, et472@xxxxxxxxxxxxxxxx (Michael Black) wrote:

Jonathan Kirwan (jkirwan@xxxxxxxxxxxxxxxx) writes:

But it would not be easy to set up a nice looking 9V power supply from that stuff. Modifying the transformers is often doable, of course, but would take some dedication to eventually get right for someone who hasn't done it before. And that is only one step along the way.

But you're suggesting that people only throw away recent stuff, when in reality there's still lots of older things that have yet to be discarded.

Yes, I suppose that is the case. However, just looking at me (and I've got a 1200 sq ft shed with "stuff" in it dating back a ways) and what I throw out these days, I can certainly see a lot less of easy use for a new hobbyist who is nearer the beginning than the end of their hobby.

Yes, recent VCRs have switching supplies, which aren't too useful in themselves and certainly aren't a source of power transformers. But lots of VCRs have been sold over the decades, and they traditionally did have fancy transformers (full of multiple windings with a wide variety of voltages).

I tend to "part out" the easy stuff in everything electronic we throw away -- which deeply bugs my wife, since she can't just get rid of things when she is busy and doesn't want to wait for my convenience. And of late, I am speaking of the recent 10 year period and comparing it with the decade of my early hobby years from '65 to '75. I have to say that I'm pulling out less and less I can later use for hobby things... by quite a stretch... and I know how to use a wider variety

Re: Regulated 9 Volt DC Power Supply

today than I could back then.

A lot of consumer electronics is out there waiting to donate a transformer. Admittedly in this case the transformer current rating may be higher than a lot of equipment will supply, but transformers (and casing) are often one of the biggest cost items when building things, and if you can pull that relatively low power transformer out of that clock radio, it will power that little project without costing you anything (or forcing you to use batteries).

And the older the equipment, the more likely you will find parts that can be reused. Those VCRs I keep bringing home are full of low power transistors that are fine for a lot of general purpose use.

If you are talking about older, used VCRs, I don't have access to "VCRs I keep bringing home." Do you work somewhere in proximity to these things? I ask, because for the OP it may be nice to actually know where to go to get things with good stuff in them to extract. I was thinking about where to recommend, as a ready supply, and I'm not sure I have a good recommendation. Goodwill, perhaps. Or some place that scraps computers -- though I've actually volunteered at such a place a few months ago and helped out there and didn't find nearly as much as I'd imagined beforehand. Good motors in printers, yes. Heat sinks, yes. Some EEPROMs and FLASH memories, yes. I suppose the power supplies might have a few items. But nothing like the old Kaypro 286i, for example, which pre-dated the "chipset days" and had a board FULL of 7400 series SSI chips on them. And I'm not sure how easy it is to get them to let you rummage stuff -- the folks I worked with separated out the gold for extraction and sold other stuff, once sorted a bit, by the pound. But if I were to have asked to take stuff, I'd have had to "ask the boss" and I'm not sure how much they would have wanted to bother or worry about someone hauling out goodies while interfering with the sorting process.

I agree, conceptually, with you. The problem is in the details of actually knowing where to go for setting hands on good stuff to gut at low/zero cost.

If you're starting out, the lack of parts is often a liability, since you have to buy every single part and aren't likely to experiment as a result. But again, those VCRs (and other equipment) are a great source to build up a supply of ceramic capacitors and even resistors. Forget the cost of the parts, with the local electronic store often a thing of the past in many locations, being able to get that needed capacitor to finish a project can mean the difference between finishing it now, and having to order lots of other parts to fill an order and waiting.

Re: Regulated 9 Volt DC Power Supply

Dot matrix printers can be a source of transformers too, though their time is enough in the past that the peak time for seeing them waiting for the garbage truck is mostly in the past.

This last one interests me. Where in the world can you hope to get a dot matrix printer, these days??? I just had someone ask me if I had any ideas at all where to get one. They wanted something that used a ribbon for the ink and supported `_impact_` printing. I didn't have anything to offer, though I admit I assumed that he'd already searched on the web a bit before asking me. I could be wrong about that. But if you know of a source, I'll pass it on to him.

Inkjets are what you see a lot of nowadays, and they can be a supply of many power transistors. They also tend to have switching supplies in standalone modules (if they don't use an external supply), which make them easy to extract. And unlike "computer power supplies" their current capacity is more appropriate for the experimenter, and even usually provide a higher voltage (ie up to around 24vdc).

I grab "computer power supplies" any time I see them, and I see them just lying by themselves often (no computer in sight). Like I said, the boxes are pretty useful for building things in.

I haven't gutted a recent PC power supply. But they seem to be much smaller, from seeing them on the outside. Which makes me think they are line-powered, chopping and using high frequency inductors with opto feedback to operate them -- and if that is right, there won't be a nice transformer there for handy hobby use. But I admit not looking, yet. Can you say more about the recent supplies?

I think it's a far better time to find scrap electronics than when I was a kid. 35 years ago, the average household had a tv set or two and a few radios, and not much else. Electronics was something you bought and kept and had repaired. If it was tossed, it was old tube stuff grungy with dust attracted by the heat and high voltage. Now there's a lot more variety of stuff, and even if you have to buy it at garage sales than wait for the garbage, it will cost next to nothing.

Well, I think there is a lot more "scrap electronics" around now -- admitted. But I'm thinking also of 35-40 years back, when I was needing these things and I feel this is all a bit of a mixed bag -- some good, some bad.

I used to find quite a few ready supplies of parts in the area. We had at least 4 or 5 BIG warehouse-style stores in the area -- Allied

Re: Regulated 9 Volt DC Power Supply

Elec, for example, operated a huge facility here that was open to the public. But there were four others here in the area and they competed heavily with each other. I used to take several days and walk through these places, over the flat tables of hand-bagged items or loose parts these places had collected up and offered for sale. NONE of these retail facilities exist, today. Not one. And I've lived here my entire life and watched the change. Radio Shack (and I remember the Tandy leathercraft stores here, too, before and after the merger) used to be, by and large, a parts store. No more.

On the other hand, I am greatly gratified by places like Mouser and Digikey, of course. And, except perhaps for Allied, I didn't have something like that as a kid — though I probably couldn't have afforded it, either. But I did also have access to perhaps 20 or so suppliers of hobbyist quantities of glass of various types (a good two dozen types, at least, for lenses) and got copies of the five periodicals that used to exist for building your own telescopes — all gone, now. Sky and Telescope still exists, but doesn't cater as it used to, of course, to that market. Of course, Heathkit is gone.

It's a mixed bag. I LOVE much of the change. I have ready access to microcontrollers of every ilk and because of that I can do things that would have been simply impossible, back then. I can buy demo boards for almost nothing (in today's terms) and, instead of having to wire wrap like a madman, I can get a nice FPGA board and program in VHDL to wire up all that logic for me. I don't even need to do the floor planning of it, if I am just experimenting around for play. I can't tell you how much of a boon that is. For example, I've designed a few CPUs of my own and was able to test out my own code, too. And it didn't take long, nor was it hard work. So, there are some big pluses today. For some of us.

But if I were starting out... well, ... okay, maybe you are right. Hard to say. But I do miss some things.

I think salvaging parts is as important for educational reasons than it is for saving money. Having parts around forces you to make a leap, instead of copying that project part by part and not understanding much, it requires you to know what the parts are doing and how tolerant each part is to variation. I also think it helps to demistify things; once you've taken things apart it's less of a mystery.

yes.

It's often worth just keeping a basic set of tools with you, so when you see some old junk, you can extract just the things you want, without having to haul the whole unit home. A little bit of knowledge helps. So if you see a radio, and are interested in radio projects, you know to

Re: Regulated 9 Volt DC Power Supply

grab the variable capacitor and loopstick if you see a radio, and maybe the whole circuit board. If you've got the tools, you can easily unscrew it and cut the wires to get the board out. Or just pull the power transformer, like I said those often cost more than the parts for a small project.

I enjoyed reading this and perhaps you are right about the times, as well. But I do wonder about someone starting out these days. There is so much available, for so little money to buy, that the motives needed to do the real digging are harder to come buy. "Back in the day," you didn't really have a choice. You either built it, or did without. When the Altair 8800 came out, I bought the kit and built it. In fact, that was the only way I could have afforded my own computer. I built my own telescopes, because back then there wasn't a ready market for a wide variety of them and where they did exist pre-made, they were WAY too expensive and there was a ready supply of cheap materials for making your own. In fact, I'd add to what you wrote above and say that you really cannot understand your telescopic instrument well, if you haven't been through all the trouble of actually constructing and testing your own to near perfection. The process of actually seeing what light does is very important and no "book learning" will quite do it for most of us. Setting up knife edge or Ronchi gratings and going through various repeated steps of correction and testing and trying out various light sources and so on is as much an important part as anything. I'm not sure that an amateur really can know what they are working with, if they have never been through that process at least once or twice.

Thanks,
Jon

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