Looking to build a 10W 14 volt wind powered / hand driven battery charger

12 VDC Gearhead PM Motor 100 rpm cheap
hand crank generator
http://www.eurotech.co.uk/html/handgen.html
Expensive $260 DC parallel shaft gearmotors
http://www.bisongear.com/subcategory.asp_Q_catID_E_3_A_subCatID_E_17

The goal is to put together a back packable HF radio (I'm an amateur radio operator) using a low power HF radio (10 watts PEP output - an ICOM IC-703) with a portable antenna, powered by a sealed lead-acid battery.

I saw on another post somewhere here in the past few days where a someone suggested buying a cheap 4 cell cordless screwdriver commonly avail in discount stores for 10-15$?, getting inside to connect to the motor terminals, clamping a vice grip pliers on the shaft and cranking it. Well I had an old 2 nicad cell black and decker cordless drill hanging in the closet unused on its charger rack (unplugged) with the nicads long since dead from constant trickel chargeing. I took it apart, took out the batteries and connected some wire to the motor terminals and brought them out through the handle and put it back together. With a vice grip connected to the shaft I cranked it at about the shaft rpm it was rated at (180 rpm) and sure enough it put out around 2.5Vdc open ckt and 3 amps short ckt. I realize this wont get you 14 V but using this idea one might look at a cordless drill (14.4 volt or higher) to try the same thing. Unfortunately the gear reduction ratio on cordless drills are not quite that of cordless screwdrivers so if the experiment holds linear and one were to crank a 14.4 V cordless drill at the rated rpm of 500 rpm one might get around 14V and likely at least 1-2 amps. I havent tried it but might be interesting. If you could pick up a used 18V model at a junk (garage) sale with dead batteries you might experiment and with some vigorous cranking get 14V. (Dont forget to add a blocking diode if you are charging batterys) Even new 14.4 v models new can be picked up on sale at Harbor Fright for $12-15. Its not too difficult to find something (small motors etc) that generate 12-14 V, but it is more difficult to find ones that have small built in gearboxes that allow the voltage to be generated at hand crank speeds of around 100 to 200 rpm, and are still small and lightweight to meet your needs. Johnlm

I dont know anything about this source but the prices are cheap. I would think one could pretty easily convert on of the ac gearhead motors shown to a pma add a crank to the shaft mount the thing for easy holding and have your 14V@1A. The Dc gearhead motors might also work with no conversion needed other than adding a crank.

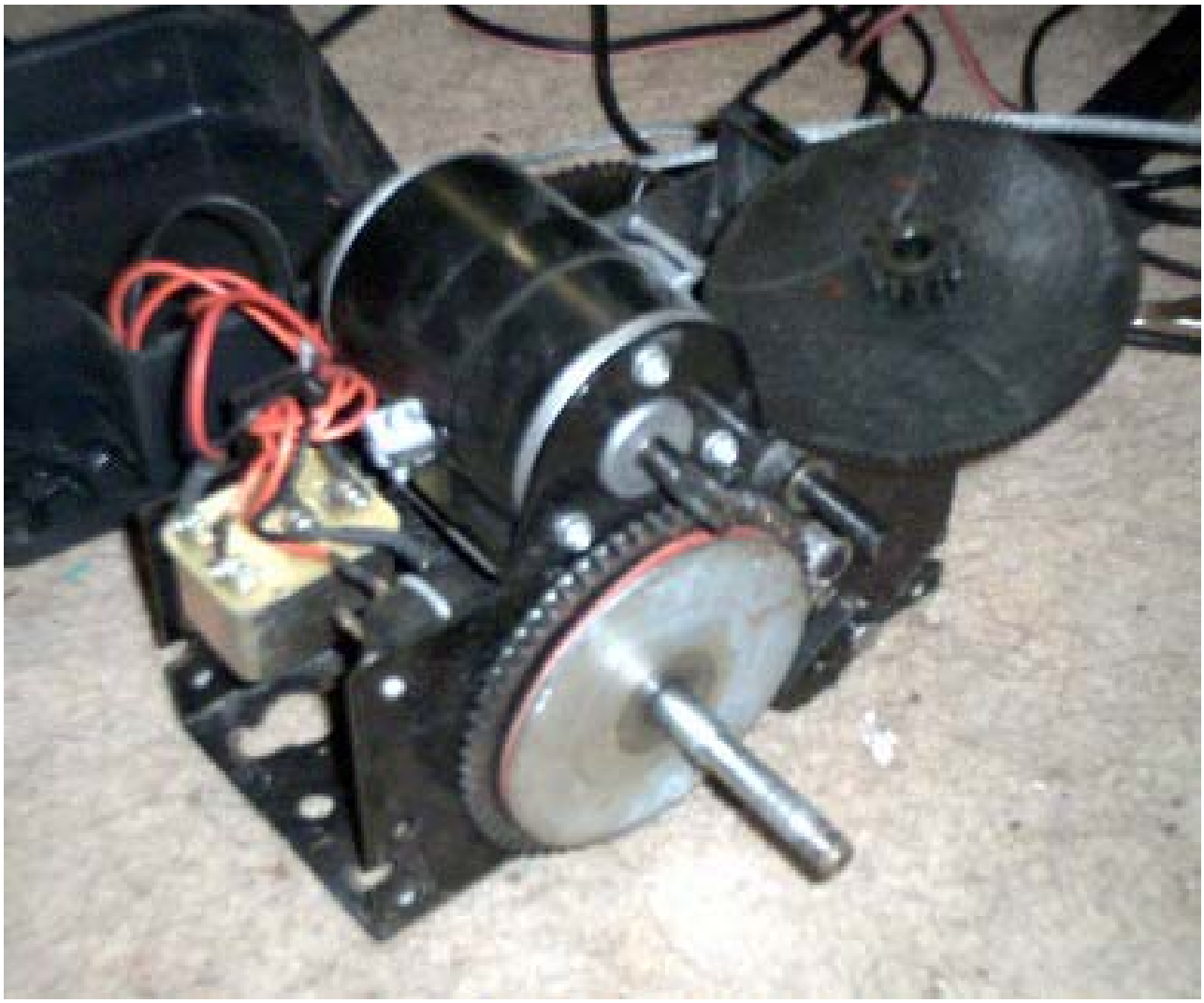
http://www.meci.com/Catalog/Category/5f4dc27e-a1fb-4919-a8b1-0c80a6cf6d6b

The ac motor units likely are shaded pole type motors similar to those used in 20 inch box fans (6 pole 1140 rpm 5 inch OD motors) which can be easily converted to a pma by pressing the rotor off the shaft, adding some 2 inch od fender washers (hole dia sized to fit the shaft), getting 2 packs of the 1-7/8 L X 7/8 W X 3/8 Thick ceramic mags from Lowes or Ace or radio shack, cutting them in half and mounting

the 1/2 mags on the fender washers. If the wire size on these (on this web site) is larger than #24 - the size used in box fans, (somewhat implied it is if indeed the motor draws 2.5 or 3.2 A) you may not have to rearrange the wiring hookup. Using the full (uncut magnets listed above and a slightly different rotor than fender washers) I just converted a 1/6 HP 120VAC 6A shaded pole motor used as a blower motor in a trailer house forced air furnace and hit 14 V output at 380 RPM and it puts out 15.4V dc at 2A at around 880 RPM. The motors show on this web site look a bit smaller, maybe 1/2 that size but likely will be able to get 14V @ 1 A with a similar conversion by cranking the crank at maybe 75 -100 RPM (Im guessing an 8:1 gear ration on those). For less than 10-15 bucks for the motor the washers magnets & epoxy it migh be worth a shot. I guess the reason Im trying to be so helpful here is I once had a ham friend that would do the setting up a transmitter site up in the hills and play find the transmitter with other hams.
Johnlm

When I posted about the winch I had this photo to upload, but I was having alot of problems with pages not loading and the net seeming to basically die for minutes at a time. No Idea why or what was causing it. Then I just could not do anything online after that.

Here it is



That motor has the smallest teeth for any gear in the unit and they are are cut into the shaft itself. That turns the large gear laying there to the right. The little gear to the right is part of the back of the large gear, all one piece, and that little gear turns the big gear on that bright silver shaft. The orange thing and large metal washer looking plate are the clutch on that silver shaft. That silver shaft I beleave goes to the other side where a gear mount to it to run other gears to eventaully run the take up spool. If cutting the unit into just one side for a crank gennie you would have to do something if cutting that shaft probably to hold it in place. I would at least leave the bottom on it to use as a mount. It has 3 nice keyholes cut into it for fast easy mounting. The entire unit as a winch is not all that heavy, so after removing cable, unneeded gears, spool ect.. it might be fairly light for it's size. Still maybe 30 miles of walking it might get a little heavy.

I spun the motor by wrapping a rope to the motor shaft and giving a quick pull, I got around 8v-10v open volts. So if you can turn it fast enough it will produce some power. I haven't sat down and figured out the gear ratio, but
LARGE/small/LARGE/tiny
gear set up in there like that I geuss about 100/1 or more :)

As a hand crank gennie I think it would work ok. As you can see in the picture everything needed to make it work is mounted on that one side of the winch. If a person found one of these junk somewhere, take it apart, cut that one steel plate off, put all that side back together and use the included hand crank. Since I still use mine for a winch I can't ripp it that far apart to see how well it would work. After all the fairly heavy use this one has had I was actaully surprised to see the gear teeth still look like new in it. Most of the people I know that had one of these before I bought mine have thrown them away. I heard that when they were still $100 before I bought mine. But for $50 I said what the heck and took a chance. What I found is the half round hole in the spool gear strips out easily then the half round shaft turns free in a round hole :(

It would not even wind loose cable.

Bolting it together tight on that gear, welding the outer nut to the gear and then to the shaft fixed that! Then the manual crank handle striped out first time I used that (battery went dead). Other than that this has been a great winch! Slow but does some pretty heavy pulling and been holding up well and the motor seems strong and reliable too. If you find one of these laying around a garbage pile grab em!

Like I said most people I've talked to toss em soon as they break, very little use on them since they break in a few good pulls! Barely stresses the cable enough to get all the kinks out!

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nothing to lose

Spelin and tpying are my strong points, not electronics.