Building an EV

TOPIC #1

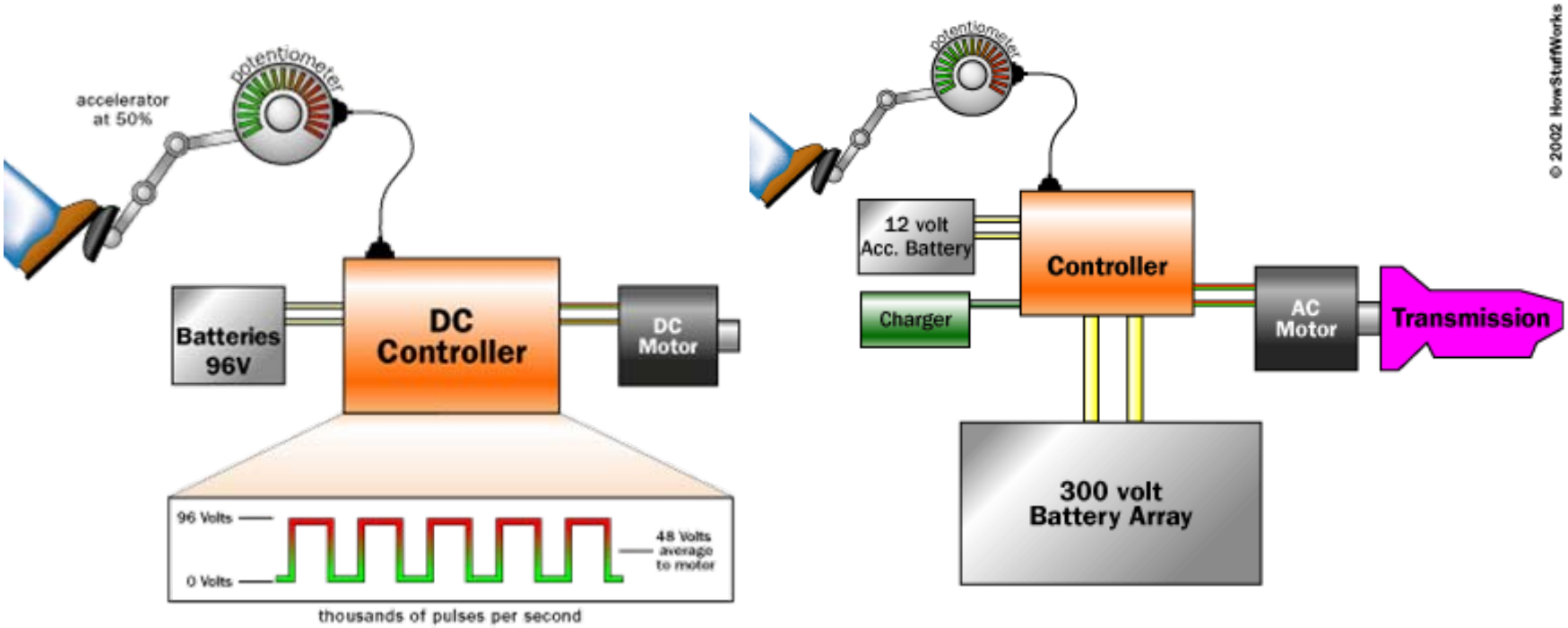
What is the best car to convert?

http://www.evalbum.com/build.html

Topics

- ***What is the best car to convert?***
- ***What kind of motor should I use?***
- **What kind of batteries do I use?**
- **Where can I buy the parts?**
- **Are there any books on how to do a conversion?**
- **How far can I go on a charge?**
- **How fast will it go?**
- **How much will it cost?**
- **How to make battery cables?**
- **How do I charge the batteries?**
- **How about solar panels?**
- **How to add power brakes and power steering?**
- **How to add air conditioning?**
- **How about solar panels?**
- **Is there anyway to make it recharge itself while driving?**
- **How about adding a generator?**

Inside an Electric Car



What is the best car to convert?

- There is no "best car" to convert. The vehicle of choice depends on what you want it to do.
- There are a few general rules.
  - Look for something lightweight with plenty of room inside.
  - Try to avoid anything over 10 years old, because parts availability starts to drop off.
  - Just because a vehicle is free or inexpensive, doesn't make it an ideal conversion. If it was a junky gas car it will be a junky EV too.

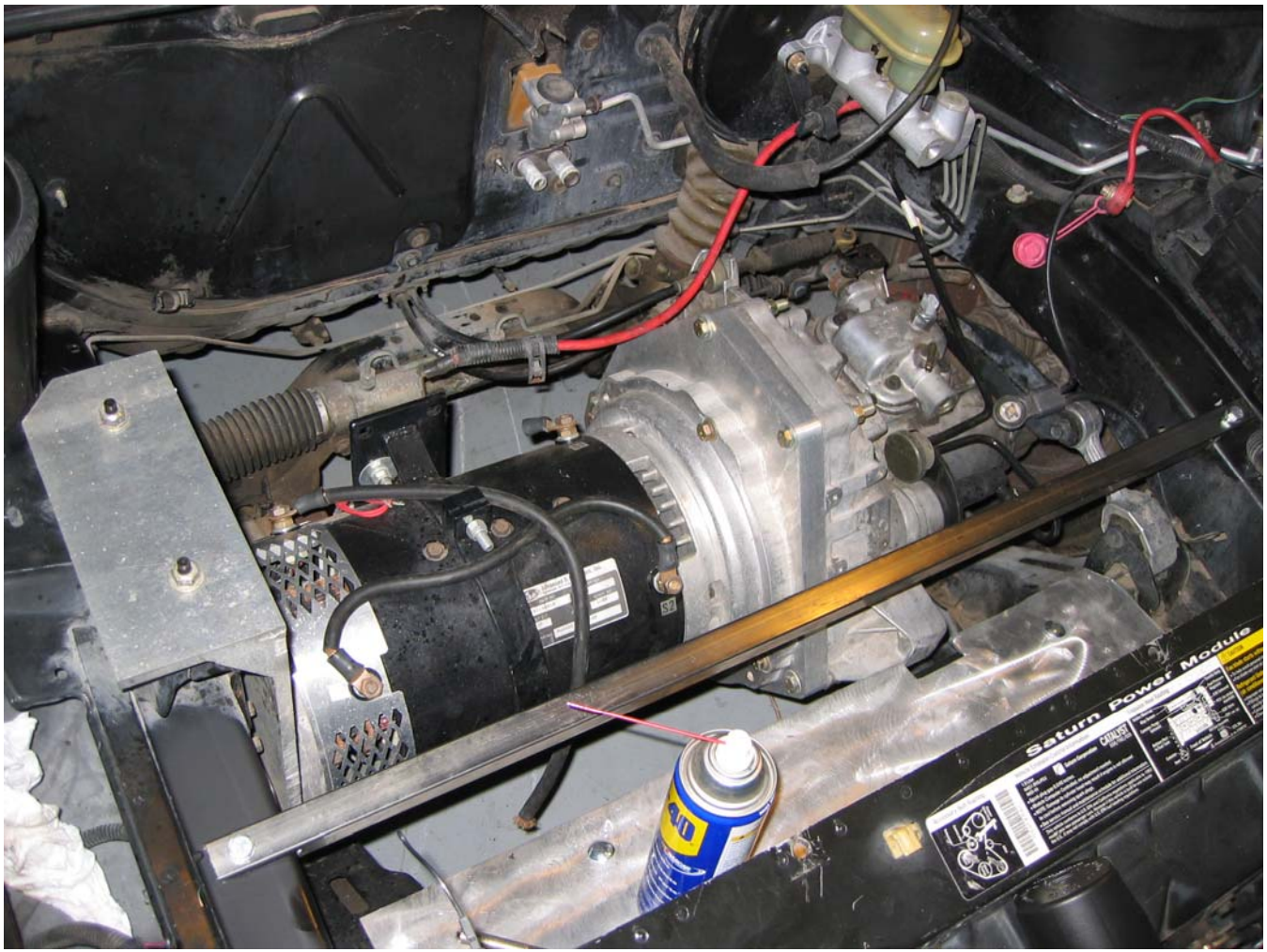
What is the best car to convert?

- Most importantly, pick a car **you** will want to drive.
- Don’t get too over excited with picking a car. Get something that is rust free to start with. You can find the cream puff.
- Having to do restoration, ie paint or rust repair, will add significant cost to a conversion.

De-ICEing (Ripping out the engine)

- Measure wheel well height front and back before you begin. Also consider weighing the car if it's running well enough to get it to a scale.
- Get a service manual!
- Have lots of deep catch pans, this will be messy. Also get an engine hoist, these can be rented.
- Recruit your friends to help, put on clothes you don't care about and go at it. Keep all fluids separate and dispose of properly.
- This is a good time to steam clean the engine compartment and possibly spray some new paint.

Inside an Electric Car – Rick's Saturn



Why Re-Invent the Wheel?

- **Transmission Patterns Available From**

www.electroauto.com
www.evparts.com
www.kta-ev.com
www.evsource.com
www.canev.com

- **Usually, the electric motor needs a reduction gear for maximum efficiency. The easiest way to create the gear reduction is to pin the existing manual transmission in first or second gear.**

Electro Automotive

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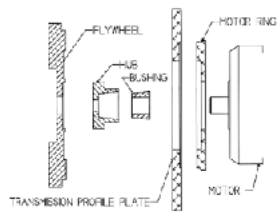
Adaptors

The adaptor plate mounts the electric motor to the original manual transmission and clutch. The Electro Automotive adaptors are precision machined on order from our library of patterns. The adaptor comes in four parts. The transmission profile plate is machined from aluminum, and mimics the original engine mounting surface. The motor spacer ring is also aluminum. It mounts to the profile plate, and recreates the original spacing between the flywheel and transmission.

Taperlock Hub

The crucial hub is machined from steel. This is a taperlock fit, the industrial standard for high rpm, high torque applications. The hub mounts to the flywheel. Its inner surface is tapered, cone-shaped. This slides over a matching tapered bushing around the motor shaft. The bushing has a split in it, and is slightly larger diameter



What kind of motor should I use?

- Picking a Motor
  - AC -VS- DC

AC	DC
Controller and Motor: ACP $20K	Zilla and ADC Motor: $3700
Batteries: 28 Sealed Optima 55 Ah	18 Trojan T-875 flooded 180ah
System Voltage: 336 Volts	144 Volts
Current at Drive: 10 – 20 Amps	50-75 Amps
Range: ~ 40 miles	~40 miles

Why?

- Not Just Global Warming
- Not Just Fossil Fuel Dependency
- Not Just Soil Erosion
- Not Just Chemical Contamination
- Not Just Our Population Problem
- It's Not Just all of these issues

- The 11th Hour. Dir. Leila Conners Peterson & Nedia Conners. Prod/Narr. Leonardo Dicaprio. Warner Bros. Entertainment INC, 2007.

Sources:

- http://www.evalbum.com/build.html
- http://www.electroauto.com/catalog/adaptors.shtml
- http://auto.howstuffworks.com/electric-car2.htm