Electric Auto Association

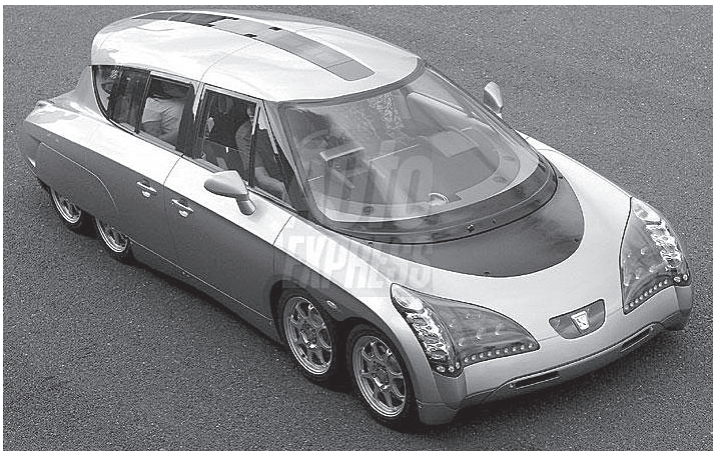
CURRENT EVENTS

January-February 2005 Promoting the use of electric vehicles since 1967 Vol. 37 No. 1 & 2

WHICH EV WILL SHINE IN 2005?

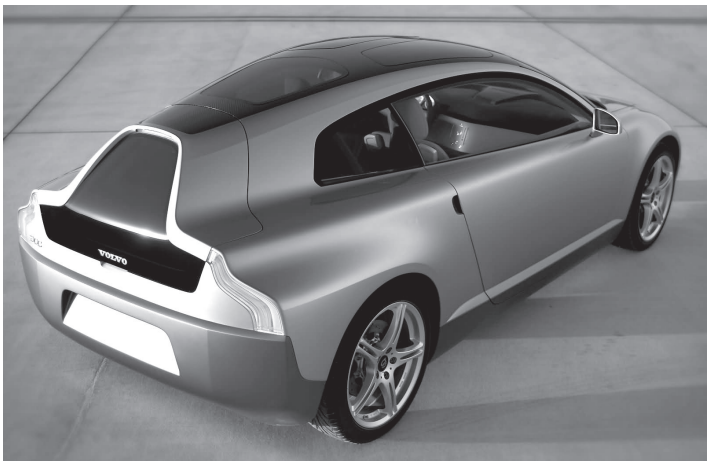
EKEIO UNIVERSITY ELIICA
Seating: 5 total, two in front, three in rear.
Performance: 0-100 km/h (0-60 mph) in 4 seconds.
Top speed: 370 km/h (220 mph).
Range: 300 km (180 miles).
(article on page 10)

COMMUTERCAR TANGO
Seating: 2 total, tandom arrangement.
Performance: 0-100 km/h (0-60 mph) in 4 seconds.
Top speed: 250 km/h (150 mph).
Range: 120 km (80 miles).
(article on page 4)



*Eliica – **E**lectric **LI**thium **I**on (Battery) **CA**r.*

Tango – it takes two to tango (tandom seating).



Volvo 3CC – 3,000 lithium-ion cells, which powers the car.

Fétish – an object to attribute magical and beneficial powers.

VOLVO 3CC
Seating: 3 total, two in front, one in rear.
Performance: 0-100 km/h (0-60 mph) in 10 seconds.
Top speed: 135 km/h (85 mph).
Range: 300 km (180 miles).
(article on page 6)

AC PROPULSION'S EVS
In September 2003, in Sonoma, California, AC Propulsion's tzero electric sports car earned the highest overall score at the 2003 Michelin Challenge Bibendum. The tzero beat every other car entered including
continued on page 7

VENTURI FETISH
Seating: 2 total, side by side.
Performance: 0-100 km/h (0-60 mph) in 4.5 seconds.
Top speed: 170 km/h (105 mph).
Range: 350 km (220 miles).
(article on page 12)

IN THIS ISSUE

Articles:

Column:

COVER STORY

Photos provided as noted in articles.

CE STAFF

Publications Committee:

Chairman - Ed Thorpe
E-mail: ceeditor@eaaev.org
Editors - Bob Oldham, Ed Thorpe
Publisher - Dorothy Foglia
Assistants/Reviewers - Various

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Electric Vehicle Today

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www.eaaev.org

By Doug Korthof

I might call BMW's Hybrid a "fake" because it's really a gas car with an electric torque boost (storing the energy recaptured by regen braking into an ultra capacitor bank rather than using a battery pack). Or, on other days, what might be called a "weak" parallel hybrid. Without a battery, it seems impossible to do much regen braking.

"Weak" parallel hybrids are just one small step above REAL "fake" (sic) hybrids such as the "combustion on demand" idea.

How's this for a classification scheme:

FAKE HYBRIDS:

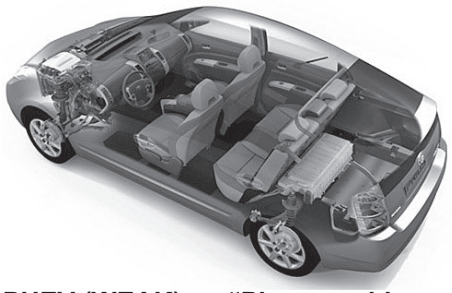
Combustion on command
Ultracap or small batteries that serve only as torque booster. LITTLE or NO regen braking.

PARALLEL HYBRID (WEAK):

Small battery or ultracap can store energy derived from regen braking (e.g., Honda Insight), but cannot run car without ICE. Does not run in electric only mode. Puts ICE as primary motive power, the essential error of this design. Under the fiction, perhaps, that ICE is needed for "real power".

PARALLEL HYBRID (STRONG):

Larger battery or ultracap can store energy derived from regen braking. Stores far more energy. Car can run in electric-only mode with electric motor as primary traction power, but main source of traction power is still ICE. Still puts ICE in front of motor. E.g. Toyota Prius.



PHEV (WEAK), or "Plug-capable hybrid Electric vehicle":

Battery is slightly larger, and can be charged via external power (plug-capable). Can run on Electric traction motor up to a certain speed, but needs ICE for higher speeds or torque. Still working with the bass-ackward idea of putting the gas engine first, and the electric traction motor second; but now, we are complicating that model by beefing up the battery.

Example of this frankenstein car will be the plug-capable Prius, that can drive at least to 43 mph in stealth mode. It would be SO MUCH EASIER to make the Prius plug-capable if it were designed for that configuration.

PHEV (STRONG, SERIAL also called EV with built-in "Long Ranger")

Electric motor is the ONLY traction power. Electric is fed to the motor from a battery, which is capable of running the car for a substantial period of time. The battery is charged by an ICE motor-generator, which only comes on when the battery is low; in general, the battery is charged from the grid, as it's "plug capable". Big advantage, like a diesel-electric locomotive, is that the connection between the engine-generator and the battery-motor is all electric, no mechanical linkages or gears to fool with.

BEV ELECTRIC CAR

As strong PHEV, but without a built-in motor-generator. On-board electric battery storage of enough electric power to travel significant distances (at least 100 miles).

In this classification scheme, a fuel cell vehicle would be a "strong PHEV" of sorts with a fuel cell stack in place of the ICE motor-generator.

The FCV might still be in the diesel-electric configuration class, because you still have to make the H2 gas via electric power (H2 is the medium of transmission, instead of the battery); however, FCV folks would argue that the FCV is, under certain conditions, completely ZEV, and that even ZEV cars require battery recycling. And no one is proposing getting rid of ALL (or even most) ICE vehicles, for a while at least.

Some would say that the ultimate vehicle might be the strong PHEV (serial hybrid), because it can serve all requirements (except ZEV); others might say that the ZEV requirement is the "gold standard" worth avoiding the serial configuration, or at least making it add-on (e.g., you could fit the engine-generator into a dock on the EV when you need to go long distances, otherwise use it as a cargo area).

Considering cost, which would you think the most logical?

	REGEN	RUNON BATTERY ONLY	PLUG CAPABLE	ELECTRIC TRACTION PRIMARY	SERIAL	NO GASOLINE
FH	NO					
PH(W)	Y	NO				
PH(S)	Y	Y	NO			
PHEV(W)	Y	Y	Y	NO		
PHEV(S)	Y	Y	Y	Y	Y	
BEV	Y	Y	Y	Y	NO	Y

COMMUTERCAR TANGO GOES INTO PRODUCTION

By Rich Woodburn, Commutercar
Photos by Rich Woodburn

Carbon fibre two seater will reach 60mph in four seconds and offer an eighty mile range.

A deal between automotive technology specialist Prodrive and Commuter Cars Corporation (CCC) of Spokane, Washington will see the Banbury-based company managing the construction of up to 100 radical new electric commuter vehicles every year. Prodrive has worked with CCC to take the Tango vehicle design from its prototype form and engineer it for efficient low volume production. It will use its extensive automotive technology and motorsport construction experience to manage the production of the Tango from its site in Kenilworth, Warwickshire, UK.

The Tango electric commuter vehicle is a radical solution to the problem of transport in congested urban environments. Only 39 inches wide and eight and a half feet long, the Tango is as tall as a conventional car but takes up only half the road width. The 1,100lb battery pack in the vehicle's floor keeps its centre of gravity low, allowing the Tango to achieve sports car levels of stability, despite its narrow track. Two high efficiency electric motors driving the rear wheels can produce a combined torque level of over 1,000 ft lbs to deliver levels of acceleration more commonly associated with supercars than eco-friendly transport.

Commuter Cars Corporation is run by Tango designer Rick Woodbury and his son Bryan.

Tandem seating with 4-point seatbelts.

Rear view of the compact Tango.

Photo ops with front and side views.

Lane splitting in the narrow EV.

Side by side with comparison with a motorcycle.

Their interest in alternative personal transportation goes back to the 1970s when Rick was researching hydrogen power. In the late 1990s, Rick and Bryan realised that the heavy weight of the hydrogen fuel cell and hydride storage could be used to give a significant stability advantage to a small narrow vehicle, allowing a single design to tackle the twin problems of pollution and congestion.

Over the next five years, the Woodburys worked on their design while they waited for fuel cell technology to catch up with their vision. "Then we realised that modern lead acid battery technology could deliver four times the range of the average daily commute. That gave us the level of performance we required to build a practical commuter vehicle," explains Rick. "We built our first running prototype in 1998 and we've been refining the design ever since."

Top notch finishes with a touch-screen electronic dash.

Commuter Cars Corporation has chosen a route to production as radical as its vehicle design. Rather than going to the risk and expense of designing, tooling and testing for high volume production straight away, it chose to enter the market with a low-volume, high performance version of the vehicle built using motorsport technologies. Sales of the Tango 600 will be used to support the ongoing development of lower cost mass produced versions of the car.

"Prodrive has all the skills we need to bring the Tango 600 to market," says Woodbury. "They have their own advanced composites design and manufacturing capabilities and have experience working with the type of racecar roll cages that form the basis of this high performance vehicle. At the same time, they are used to building, modifying and testing passenger cars to the highest OEM standards."

"Prodrive is one very few organisations world wide that could actually do what we have done with the Tango," says Geoff Bye, Prodrive project manager for the CCC project. "In less than three months we've been able to take the prototype vehicle, make over 100 engineering changes to ensure it is suitable for low volume manufacture, and make use of both racing car and passenger vehicle manufacturing capabilities to put it into production."

Several customers, including Hollywood celebrities, have already placed $10,000 deposits on the initial Tango 600s. The first customer vehicle will be delivered before Christmas. The vehicles built by Prodrive will cost $85,000, although the target price for a mass-produced version of the Tango is set at less than $20,000.

More information on the Tango can be found at www.commutercars.com

EV dashboard with +/- Amps on left, pack Volts on right.

Using components from AC Propulsion, Volvo engineers designed a terrific looking car that seats three. Performance is great, 0-100 kph in 10 seconds (62mph) with a top speed of 135 km/h (85mph). Range from the LiIon battery pack is 300 km (180 miles) and it can be plugged into any damn plug anywhere.

The body is carbon fiber so the 3CC is light.

Volvo makes the world's safest cars. When they release the 3CC, they will also make the world's most efficient and durable cars.

The purpose of unveiling the 3CC was to show gauge the reaction to this type of car so communications like yours is very much appreciated. Once we determine the economic viability of such a product, it will be put on the market. Please understand that it does nobody any good if Volvo put itself out business.

The 3CC is also an engineering prototype that is helping us understand the current state of battery technology. It is promising but we have yet to see if the current technology meets Volvo's quality standards. As you probably know, we are known for making cars that last a very long time.

As far as we can tell, there are no estimates as to the price, as the vehicle is not currently in production. If indeed only a handful of these vehicles are produced, we can imagine the retail price going up, rivaling that of a top model Mercedes, or BMW. Here in

Front view.

America, the oil companies only need to cry 'foul'! or 'lawsuit' and everyone listens, and the states and governments changed the laws to accommodate.

We need to establish a FIRM set of guidelines, and stick to it, without outside oil company intervention. In Taiwan there is currently a 25% ZEV mandate, the oil companies there may not like it but that is their problem. Several other countries have similar laws, so, full blown production on a car of this scale definitely has the demand, and mass volume of sales could easily bring the cost WAY lower than anyone would anticipate.

Rear quarter view.

Tapering back behind single rear seat.

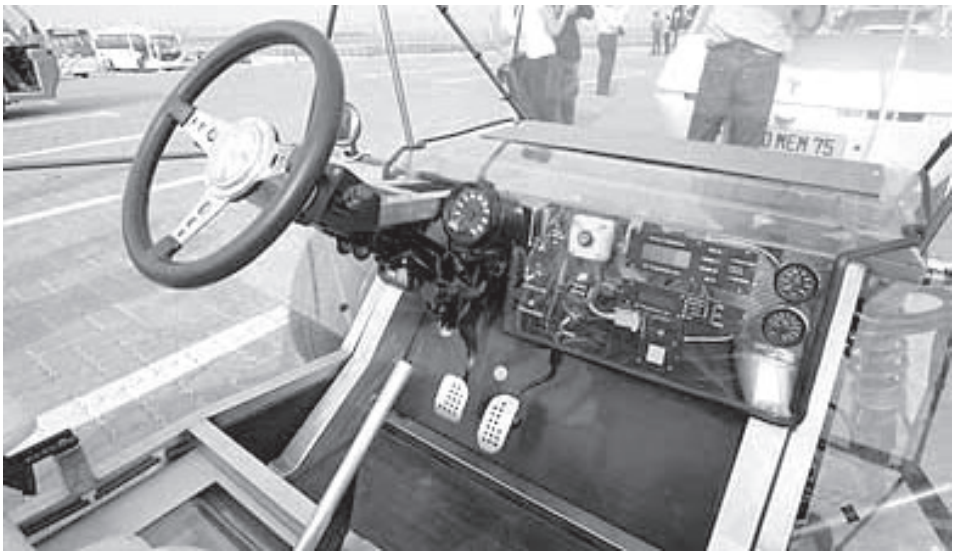
Front view with doors open.

Driver entry view—doors and hood open.

The contact person at Volvo to express your interest and encourgement to continue this vehicle into production is:

Daniel Johnston
[mail to: djohn116@volvocars.com
Product Communications
Volvo Cars of North America
1-800-970-0888 hit 3 then 1
1-201-784-4504 direct line
1-201-924-2641 cell
www.volvocars-pr.com

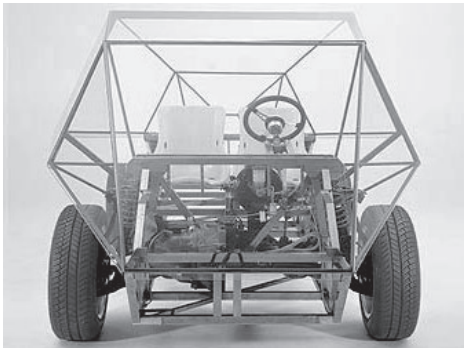
Rear view



Dash with essential instrumentation

AC Propulsion *ontinued from page 1*
Photos from AC Propulsion

hybrids, fuel cell vehicles and other electrics. Based on that performance, four companies developed plans for electric vehicles designed around AC Propulsion electric drive technology and Li Ion batteries. Now one year later, three of those companies are



Front view of the glassed-in EV

unveiling their all-electric creations.

Volvo and its California Monitoring and Concept Center have developed an EV concept and entered it in this year's Michelin Challenge Bibendum in Shanghai, China. Very much a Volvo in appearance, the Volvo EV concept carries an underfloor Li Ion battery to power an AC Propulsion drive system in a stylish, efficient, and lightweight package. Built and tested in California, the Volvo EV will make its world debut in Shanghai.

Monaco-based Venturi Automobiles introduced the Venturi Fetish concept at the Paris Motor Show 2002. This year at Paris Motor Show 2004, the Fetish is back as a fully functional high-performance, sports 2-seater prototype. Venturi marks its 20th anniversary of automobile production with a nod to the future. The Fetish is electric, powered by AC Propulsion.

Courreges Design of Paris had a good run with its electric bubble car in the Bibendum last year. Stylish, well-driven, and fundamentally sound, it made a big impression but suffered from lack of power. Madame Courreges noted the tzero's performance and took bold action. She ordered a complete tzero drive and battery system from AC Propulsion. She didn't put it in a tzero though, and it's not in the bubble car either. It's hard to describe. You'll have to see it in action in Shanghai at the Michelin Challenge Bibendum.

Each of these three cars reveals a different concept and style. All of them offer a vision of the future where cars run on electricity drawn straight from the grid, stored in lightweight, effi-cient, mass-produced Li Ion batteries, and delivered smoothly and efficiently to the drive wheels by AC Propulsion drive systems.

You may wonder about the fourth company mentioned above. It's too soon to give details but imagine a company that wraps Silicon Valley entrepreneurship and British racing heritage around AC Propulsion technology and plans to take the delightful result it to market. Stay tuned.

A year after its success in Sonoma, the first tzero continues to rack up miles — 75,000 total miles, 15,000 miles on the Li Ion battery installed in August, 2003. The second and third tzero's continue to make their

French Officials take it for a spin

EV goldfish-bowl test vehicle

owners happy. The tzero has made its case — EVs can be powerful, fun, and efficient — but progress marches on. These new vehicle concepts will supersede the tzero. Still there is one left. A fourth chassis awaits completion for an enthusiast who wants to own the last tzero.

Remember, electric vehicles = transportation without petroleum.

Death of the ZEV Mandate

By Mike Kane
mikewkane@yahoo.com

ZEV timeline that we are slowly piecing together Thanks to Mike Kane for his hard work on this research!

Jan 25 2001 - CARB adopts amendments to the ZEV regulation pushing out compliance dates and allowing low-pollution vehicles (PZEV, AT-PZEV) to qualify for partial credit.

Feb 23 2001 — GM files suit over 2001 ZEV amendments

Mar 2001 — GM informs those on waiting list they won't be getting EV-1's.

Feb 2002 — GM sends letters to EV-1 lessee's telling them that they will not be renewing current leases.

Jun 11 2002 — Court issues injunction prohibiting CA from enforcing 2001 amendments to ZEV regulation.

Aug 30 2002 — Ford cancels Th!nk program

October 9 2002 — Bush administration files friend of court brief supporting GM in its lawsuit against ZEV Mandate.

Nov 2002 — Toyota stops taking new RAV4-EV orders (cant' find any announcement with exact date)

Jan 10 2003 — CARB publishes staff report with proposed amendments to the 2001 version ZEV Mandate to be considered at Feb 27 Board Meeting. (These were the original small modifications pushing the program out two years, making some changes in how credits are calculated, and adding some additional weighting for FCVs)

Jan 10 2003 — Toyota sends letter to RAV4-EV owners and those on waiting list informing them that they are canceling the program

Feb 13 2003 — CARB cancels Feb 27 board meeting and announces they are working on a new set of amendments to the ZEV mandate

Mar 5 2003 — CARB publishes 2nd set of amendments to 2001 version of the ZEV mandate. (These are the ones that added the Fuel Cell "Alternative Compliance" track which effectively killed the mandate.

Apr 24 2003 — CARB approves the changes after delaying decision at March 27/28 public hearing

Aug 12 2003 — Automakers sign agreement with CARB dropping the lawsuit in light of the changes to the ZEV mandate

Why did the ZEV Mandate Fail?

By Earl Cox
earlcox@charter.net

After watching the EV1 debacle over the past 14 years from both inside and outside the industry, a simple fact has become very clear to me.

ICE manufacturers REALLY BADLY don't want electric cars.

Once this assumption is made, everything falls into place:

Why don't they want electric cars:
Look at history:

- the telephone was not pushed by Western Union (former telegraph mega-company)
- the digital camera revolution was not lead by Kodak or Fuji.
- the move from sail to steam ships was not driven by the sailing masters of the sea.
- and on and on..

Look at corporate structure:

- an ICE company is made up of many divisions: Body, Chassis, power-trains (transmissions), power-plants (ICE), Service, Sales, electronics, etc. The most powerful ones are power-trains and power-plants.

Now put yourself into a position of any authority in this industry:

I dare you to walk into the board room and suggest a car that has no use for power-trains or power-plants and significantly reduces the need for service. Now try to find a friend in the room :-(

Once you realize that the BEV must be stopped, you must figure out how. If you are a major multi-billion dollar company, you'll spare little expense.

- you'll hire a bunch of lawyers to fight any legislation
- you'll hire PR companies to spin anything your way
- you'll hire a small R&D company to make the best EV possible just to show the world that it is a very bad idea.
- you'll try to place shills in all influential organizations
- you'll delay as long as possible by promising and actually conducting research into alternatives (and coerce the federal government to foot a lot of the bill)

Now suppose, as all campaigns do, a few problems surface:

Suppose your R&D company screws up and makes an EV that really looks great?

You tell the State of California you'd be happy to sell these cars except that due to your high costs, you have to have a guaranteed market — and that Republican SOB in Sacramento actually calls your bluff!

Now you have a real problem on your hands:

You then have to show that while a prototype may work, it really isn't economical (battery capacity, charging times, battery costs, battery lifetimes, battery hazmat, battery heating, yada yada yada).

Therefore, you put the car into pilot production and get the government to subsidize research into proving that these efforts won't (er) will work.

Then, throughout 10 years of subsidized R&D, battery capacity doubles in the first 3 years with an impressive improvement trend clearly showing, charging times drop to sub 20 minutes, battery costs appear to be on a run-away decline due to mass production

potential, battery lifetimes start to look great, new 'green' battery technologies emerge, semiconductor technology improves battery safety, and one by one, all the real barriers fall at an alarming rate.

Now, you only have one option: Kill the cars at any cost.

You then have to:

- smear the truth
- get as many golf carts onto the road to block traffic as possible in order to convince the general public that EV's are ugly, weak, short range vehicles that no one would really want.
- play up any bad news such as some car that caught fire
- hide all the evidence of technology breakthroughs and continue to publicize 1970's technological barriers.
- find a new 'promising' technology to look into to solve the problems of the old technology
- have your shills take the gloves off
- abuse and ridicule the few people who have managed to get the vehicles
- destroy or threaten the careers of all within your companies who supported or were even involved with EV's so as to ensure that no one would even think about such a thing again.
- destroy all existing high performance EV's in order to remove any evidence of what a high powered EV can really do. This will simplify the PR task of labeling EV supporters as people on the fringe.
- make up a bunch of liability and marketing stories to rationalize your actions.

Now, if you happen to be Toyota and make your money by being the "second rat who gets the cheese" instead of the "early bird who gets the worm", you will pursue the same tact but a little more subtly so as not to truly inflame your loyal customers.

- you will provide a BEV conversion to a normal vehicle but still restrict its distribution (partly because your government isn't funding much of the effort)
- you will make sure your BEV conversion is functional but not particularly exciting or eye catching so as not to raise the average person's interest or attract regulatory action against you
- you will launch a hybrid that still contains components from all your corporate divisions
- And on and on...

The sleek lines of the Eliica.

By Peter Lyon
Photos by AutoExpress

The eight-wheel Eliica from Japan's Keio University Electric Car Laboratory can scoot from 0 to 60 mph in four seconds. It hits maximum speeds of 230 mph.

The car is pretty fast but there are some down sides. In order to build the car that aerodynamic and stable at high speed, it only sits inches off the ground. The roof is low enough that its passengers can't be taller than 5' 8". It weighs less than what a production car would because the track tested version lacks interior bells and whistles (it also would probably not perform well in crash tests). The street tires used in the test would be horrible for winter driving also. The car costs about $350,000 USD.

If the car was modified for "normal" driving, the top speed would probably come down to something much more reasonable.

On the plus side, the car HAS 800 HP (100 hp motor at each wheel). I would be curious to see what kind of price/performance they would get from a smaller 4 wheel car about the size of the Honda S2000.

What has eight-wheels, goes 230mph, and takes ten hours to recharge? Okay, yes, DildonoTron 9000-besides that. The Eliica electric car designed by Hiroshi Shimizu, is what, and Auto Express got to take one out for a ride. It's as ugly as sin, but it'll do 0 to 60 in just four seconds, powered by separate 100hp motors in each of its eight wheels. It's just a prototype, sadly, and will likely remain that way until they can figure out a way to produce one for less than a quarter of a million dollars.

It doesn't require plutonium to power its flux capacitor. It won't travel through time when it reaches 88mph. And unlike the Doc and Marty McFly's DeLorean of Back To The Future fame, it needs nothing more than a power point to keep it running.

Called the Eliica — short for Electric Lithium-Ion battery Car — this radical

Putting the 8 hub motors through the paces.

View of the fast charging ports.

Driver's view of the instrumentation.

800bhp eight-wheeler from Japan is proof that electric vehicles can be fast and fun to drive, too. Boasting a four-second 0-60mph sprint and seven-second 0-100mph time, the Eliica is faster than a Porsche 911 Turbo.

So what is it like on the road? In this world exclusive, we took the controls to find out. As soon as you climb into the snug cockpit, you realize this car is built for speed. It's more than five meters (17 feet) long, shaped like a bullet and carries its batteries, software and motors in a narrow chassis bed, giving it the lowest centre of gravity of any prototype we've come across.

In tests, the Eliica has recorded a top speed of 370kph (230mph), although its inventor Hiroshi Shimizu claims it could clear 400kph (250mph) in the right conditions. "When you're dealing with technology thought by most to be slow, heavy and lacking range, you must do better than any supercar," he said.

At our drive at Keio University near Tokyo, we punched the 'D' button on the dash, pointed the car down the road and flattened the gas pedal. With a faintly audible whirr of eight 100bhp in-wheel motors, the 0-60mph sprint was smooth, effortless, quiet — and surreal. The mind-boggling acceleration was on a par with that of a 500bhp GT racing car. Yet the lack of a transmission meant there were no jerky cog swaps as we were thrust back in our seat by an incredible 0.8Gs.

Front seat/interior view.

With that ultra-low centre of gravity, the car handles surprisingly well, and has virtually no body roll or nose-dive. It turns in sharply with well weighted steering through the front four wheels, and gives adequate feedback. And it does not feel as big or as heavy as its length and 2,400kg (5,300 lb) curb weight suggest.

The only downsides, apart from the tiny cockpit, are that it takes 10 hours to recharge, and a production version would cost £170,000. To bring Shimizu's research back to the future, he needs a major firm's financial power behind him and the whole electric car movement.

The dash and driver's seat.

From RSportsCar.com

Presented as a World Premiere at the 2004 Paris Motor Show, the Venturi Fetish is the first production electric sports car in automobile history. Fetish demonstrates that it is possible to make today what the big automobile manufacturers are only proposing 20 years from now.

Where public opin-ion considers an electric vehicle to be ugly, Fetish is the first electric car to be beautiful and desirable. Where public opinion believes that an electric car lacks performance, Fetish offers a remarkable acceleration and a maximum speed of 105 mph, well above the maximum speed limit. Finally, where electric cars are thought to seriously lack autonomy, the Fetish offers 220 miles (350 km) of autonomy and a rapid battery recharge (with 80 Amps) of 1 mile a minute or 10 minutes recharge for every 10 miles, easily covering the needs of daily urban transport.

Under the technical direction of Gerard Ducarouge, chief engineer of the project, Fetish has been conceived to be an electric vehicle with absolutely no compromise on batteries and using the best state of the art technology available world-wide, regardless of price. With the engine ideally positioned in rear central position and a monocoque carbon chassis, the overall architecture of the Venturi is comparable to that of a racing car. The road holding is an evolution, even with regard to the Venturi Atlantique 300, already well renowned for its excellent road holding.

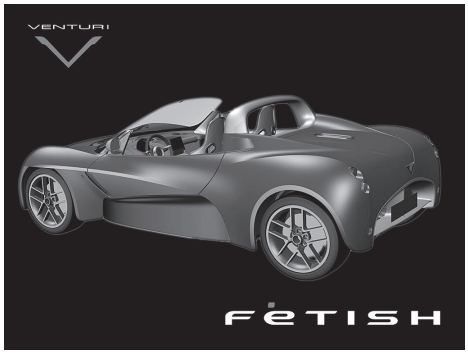
The vehicle attains a record light weight of 1653 lb (750 kg) without and 2424 lb (1100 kg) with batteries.

Venturi's innovative approach represents a complete change in cultural direction, the evolution from the traditional sports car to a noiseless electric sports car, as well as a radical change in technological references, placing the battery, not the engine, at the epicenter of the automobile technological advancement and its performance.

With state of the art technology available and the mass production of batteries for mobile phones and laptop computers, an electric sports car is no longer out of the question.

However, before Fetish and the Lithium-Ion batteries, it was not possible to stock enough energy in an automobile: more than a ton of batteries would have been necessary to achieve the same power.

Side view with logo



Side view (concept computer generation)

Wheels flash.

Driving a Fetish

Driving a Venturi Fetish is an entirely new experience. The car in equipped with a linear torque engine, 100% available on ignition, achieving 14,000 rpm and adjustable engine braking. With a 242 bhp (180 kW) engine, Fetish offers a unique driving sensation: accelerating from 0 to 62 mph in less than 5 seconds, demonstrating that its electric propulsion engine indeed supersedes many petrol engines over 330 bhp.

Commercialization

Having integrated the obligatory standard norms for Europe, Japan and the USA right from the conception of Fetish, it will be made available for sale commencing with Tokyo (November 2004) and Los Angeles (January 2004), two markets that are particularly sensitive to environmental issues. Paris, London and Monte-Carlo have also been selected as the main target markets in Europe.

Assembled by hand and made to order, Fetish is already available for sale — a trendsetting concept, at a price of $664,000 (540,000 Euro). The new Venturi is destined for the select few visionaries seeking to be identified with such a unique automobile.

The Fetish Concept

Fetish has been conceived to demonstrate that there is an exciting alternative to the petrol engine. This playful and innovative

alternative completely respects the very essence of automobile tradition, rarity, character and passion, as well as the world around us. Fetish utilizes and maximizes all available techniques and technologies with a unique goal: pleasure. Pleasure of driving, visual and tactile pleasure — you will be thrilled to drive today, the automobile of tomorrow. Fetish simply demonstrates that there is a future after the death of the traditional car of today.

USA Interest

By David Franklin
davidcfranklin@comcast.net
Contact: 323-788-3631

There is exciting news on the EV horizon from AC Propulsion! The next production EV has just been announced!

Venturi (www.venturi.fr), based in Monaco, has just announced their newest high-end sports car, and has asked me to help spread the news.

Venturi has a 20-year history building ultra high-end sports cars. Their latest product, the Venturi Fetish will be unveiled at the LA Auto Show. The Fetish sports an AC Propulsion drive train and Lithium Ion battery pack even more robust than used in the t-zero! Their website indicates performance is 0-100km per hour (0-60 mph) in under 4.5 seconds, and a range of up to 350km (210 miles) per charge! Not too shabby!

This vehicle is sure to turn some heads in the gas-dominated high performance sports car world, further helping to dispel the 'golf cart' image that EVs maintain in the public eye.

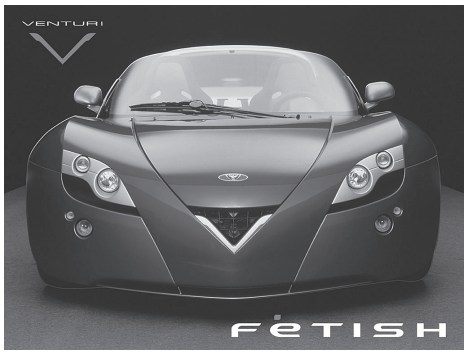
Please check out the website, and be sure not to miss the unveiling at the LA Auto show!

Specifications

Type: 2 seater - roadster
Rear wheel drive

Motor: central mounted, 180 Kw (equal to 300 HP)
Torque 220 Nm, Air cooled

Publicity photo



Head-on view.

Transmission: 1 gear reduction unit
Ratio 9.58:1
Central unit: Carbon — Aluminum honeycomb
Front & rear unit in welded aluminum extrusions

Bodywork: Carbon fiber
Suspensions:
Front: double wishbone with combined spring & dampers
Rear: multi-linked with combined spring & dampers
Front & rear anti-roll bar

Brakes: Front: specific Venturi calipers with double disks
Rear: specific Venturi calipers with single disks

Dimensions:
Wheel base: 2600 mm (102.4 in)
Front/Rear track: 1500/1590 mm (59.0/62.6 in)
Length, width, height: 3887/1884/1200 mm (153.0/74.2/47.2 in)
Front rims diam: 18
Rear rims diam: 19

Weight:
Curb weight (with battery): 1100 Kg (2420 lb)
Battery package: 350 Kg (770 lb)

Performance:
1-100 Km/h: 4.5 s (0-60 mph)
Autonomy: from 250 to 350 Km (150-210 miles)
Top speed: 170 Km/h (102 mph)

Features:
Leather or neoprene trim
Apple Mini I-Pod (MP3 player)
Alpine System: multimedia station with a GPS navigation system and DVD with touch screen.
Waterproof, isothermal and aerodynamic canvas cover
Rechargeable cable with bag

Alimentation:
Batteries: 100 Lithium Ion: 58 Kw/h
Air cooled

Charging mode:
Full charge under 80 Amp 3.5 hours
Full charge under 16 Amp 16.5 hours

Manufactured in the Principality of Monaco, Fetish is sold in Monaco, Europe, Japan and California. We are currently touring those areas throughout shows and major events:

Sept 2004 - Paris Motor Show
http://www.mondial-automobile.com
Jan 2005 - L.A. Auto Show
http://laautoshow.com

Reserved to a very limited number of buyers, Fetish is handmade on order.
Price: 540.000,00 Europe without VAT ($664,000)

By Lance Greahouse
firemaster@cox.net

Recently Lance submitted this electric motor scooter to the EV Album — http://www.austinev.org/evalbum/574.html. Here's the history and conversion process behind this predecessor of the Discovery Channel's "Monster Bike".

The electric "Steel Steer", ready to roll.

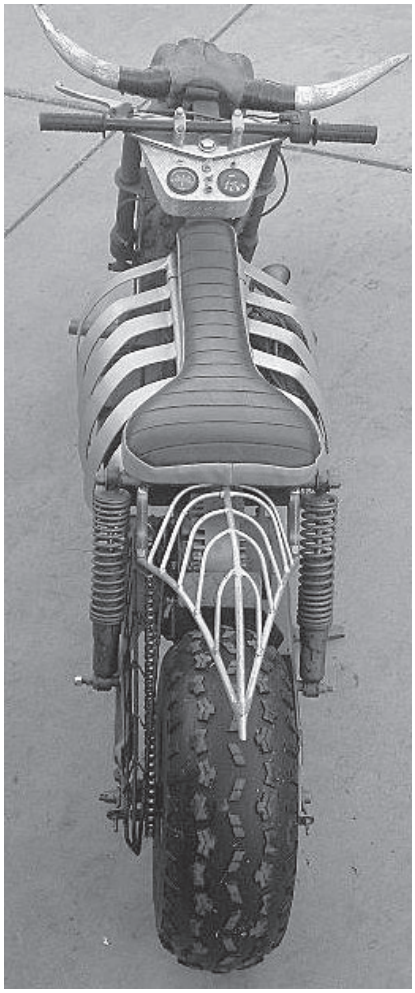
Specifications:

Owner:	Race & Bryce
Location:	Phoenix, Arizona
Base Vehicle:	Used ATV tires and rims with a homemade frame, front forks were off some kind of trail 70 fat cat bike
Motor:	E-tech
Drivetrain:	homemade
Controller:	Curtis
Batteries:	wheelchair (batteries we can find from local vendor's dumpsters)
System Voltage:	24 Volts
Charger:	wheelchair charger
Instrumentation:	Ammeter & Voltmeter
Top Speed:	60 mph
Acceleration:	0-60 mph in 12 seconds
Range:	about three miles at full throttle, longer when stingy with power.
Seating Capacity:	1 adult
Tires:	ATV
Conversion Time:	about 3 weeks
Conversion Cost:	about $650
Features:	Air horns to scare people, Lights in eyes

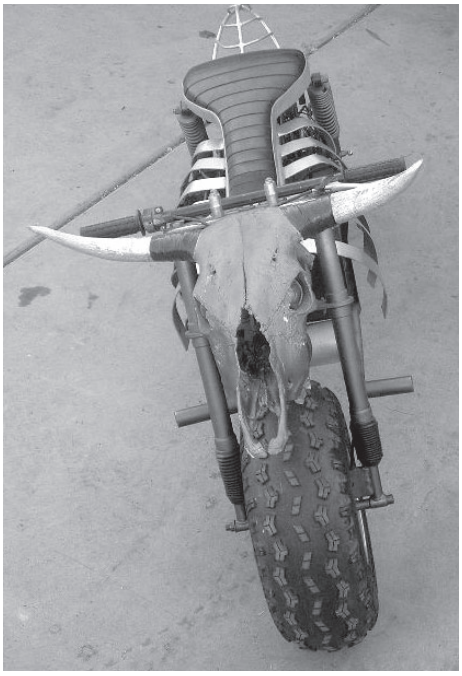
The Steel Steer project took about three weeks of our spare time to construct. We had built a small electric scooter for my youngest son Bryce, which was able to beat all the local gas go-peds with a top speed of 29mph. After seeing how much fun his younger brother was having, Race, my oldest son, wanted to construct a faster and bigger machine. His first name is Alex, but he likes his middle name, which is Race (Photos on next page.)

My hobby is building robots and strange machines. When I was competing in 2002 Robot Wars in London, I saw an electric vehicle on the movie set that had a skull mounted on it. I was told that the special effect guys from Star Wars made it for driving around the sets. When I got home I started making a lot of my projects around skulls.

The boys and I started with an E-tek motor and a GTK2004 12-36v 275 amp controller we purchased from Electric Vehicle Parts. It was for robot weapon that we were going to build for the next Robot Wars, before the games got CANCELED here. My brother Brent donated us two ATV rims and tires along with front forks of some kind of fat cat bike.



Rear view of the Steer, with the signature fender.



Front view of the Steer, with the lighted-eye skull.

One of the hardest parts for us was constructing the front and rear hub and sprocket assemblies. We used a Honda Trail 50 for the rear sprocket and front brake drum. We mounted a 13-tooth gear on the main drive motor using a 1 inch variable pulley to weld to, and the rest of the bike is

The boys getting ready to "ride the Steer", with robot wars creation in the background.

Bryce ready for another race.

made out of used dental equipment and spare parts that we could find. I am in the dental equipment business and an always bring used equipment and parts home.

The batteries are from our local Dewalt Service Center. The Center donated some used batteries that were going back for recycling. The boys insisted on putting lights in the eyes along with other front and rear lighting so they can motor around our block at night. They also had me install a loud air horn with reservoir to scare people when thy drive by. The bike always attracts attention when they drive it.

People say that the rear fender looks like the spider bike on Orange County Choppers. I tell them that this bike was built about a year and a half before that program was on TV. The bike also is equipped with key switch, amp and volt meter and hand throttle control with front brake.

We originally had it set up to run on 36-volt but that made it too fast for boys and too hard to recharge. So we downgraded to 24-volt. This still allows the scooter to get a top speed of about 60mph and a range of about three miles at that speed. I am sure with a set of new batteries that the mileage would increase drastically.

We have about $650 invested in this project. The boys have been riding this for over two years now without any major problems, other than batteries don't last too long. Both boys worked on all phases of this project, including the welding.

I am very proud of Race, 11 years old, and Bryce, 8 years old, for the time they put into this project, and others.

Bryce's small electric scooter, for beating gas go-peds.

Side view of the small scooter.

CALCARS PRIUS+ PROTOTYPE — PRELIMINARY FACT SHEET

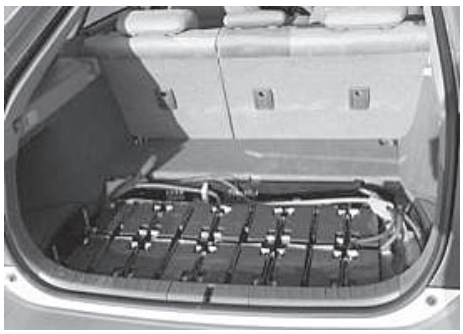
By Felix Kramer
fkramer@calcars.org

For those who are interested in our project, but haven't been following every detail, this summary of the conversion completed in Fall 2004 brings you up to speed on what we've done.

This Fact Sheet is a work in progress; we'll be adding additional details soon.

For an overview of the PRIUS+ project, see http://www.PriusPlus.org

For the latest discussions, see the PRIUS+ PHEV Conversion Group at http://groups.yahoo.com/group/priusplus/



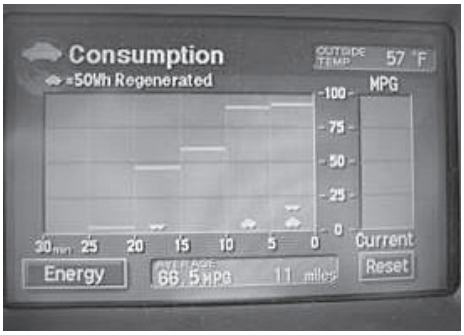
Battery pack expansion for plug in ability.

SPECIFICATIONS

- Conversion platform is a stock 2004 Prius hybrid (HEV).
- Prius hybrid battery pack (Panasonic 6.5 Ah, 201.6 Volt, 99 lb/45kg.) remains unused during PHEV operation in vehicle and can be used in normal hybrid mode as needed, e.g., for comparison (in future prototypes, this battery may be removed).
- Temporary new battery pack, completely replacing Prius pack (for this first prototype, we used low-performance but resilient lead acid (PbA) for testing purposes and to obtain design criteria for higher-performance packs): 18 electric bicycle B&B Ah 12Volt SLA batteries from Electric Rider (nominal 12 Ah, 2.4 kWh total at the car's high discharge rates, 216 Volt, 240 lb without associated hardware and components).
- Batteries positioned in empty well below hatchback deck, with independent manually switchable air cooling system.
- Batteries recharged via standard 110 volt outlet in 3 hours, using Brusa NLG5 charger.
- Battery Management System by Energy Control Systems Engineering Controller/Display Unit (CDU). No change to Toyota Hybrid System (THS) controls.
- Data from battery and from CAN (controller area network) bus interface. Dashboard analog meters display battery voltage and current, and the EnergyCS in-dash digital display includes battery voltage and current, Amp-hours used from the battery, vehicle power requested (e.g. via throttle position), battery state-of-charge (SOC) reported to the THS, and milli-gallons of gasoline used per trip.
- State of Charge information sent to THS is set manually to force energy use and regenerative braking regimen (will be automatic in future iterations).
- Configuration permits rapid reversion to standard hybrid operation using the Prius's Battery Management System and retained original battery.
- Operation permits electric-only mode at up to 35 mph for up to 10 miles; above 35 mph, battery energy continues to contribute to higher gasoline mileage at all speeds as long as there is charge left in the battery; then operation reverts to normal HEV mode, though still using the new battery pack.

(VERY) PRELIMINARY OPERATIONAL DATA:

- Approx. 300 lb total additional weight reduces MPG by approx. 5 mpg in standard HEV operation on city streets (because of acceleration losses), but by little or nothing at highway speeds, (where wind resistance is the main factor). Lower internal resistance of future battery packs is expected to increase the efficiency of standard HEV operation sufficiently to restore original standard HEV city mileage even when grid-charging energy is not used.



Updated Prius performance.

- Equivalent miles/gallon numbers and operation costs depend on patterns of use (total miles driven/day, speeds driven). Following are initial examples:
  - + Under 10-mile all-electric propulsion (at under 35 mph), no gasoline plus 262 Watt-hours/mile.
  - + 14 mile trip, including approx. 10 miles on hilly freeways: 74 mpg + 212 Wh/mi, compared to 38 mpg as a normal HEV (but driving with the extra battery weight — otherwise would probably be around 41 mpg).
  - + 26 mile trip with lots of surface streets: 65 mpg + 164 Wh/mi.
  - + Longer trips: info to come.
  - + All-electric miles: power cost approx. 1.25 cents/mile (assumption of 250 Wh/mi and 5 cents/kwWh on California off-peak EV "E-9" rate, and not amortizing battery cost), vs. approx. 4.5 cents/gasoline mile ($2/gallon, 45 mpg). Those who charge with otherwise unused or not-sold-back-to-the-grid photovoltaic power would pay zero/mile (not amortizing system cost).

PLANNED FUTURE PROTOTYPES

- Nickel-metal hydride (NiMH) (27Ah, 5.4 kWh, 225 lb extra after removal of existing hybrid battery) and providing up to 20 mile electric only range.
- Lithium-ion (Li-Ion) (36Ah, 7 kWh,, 147 lb extra after removal of existing hybrid battery) and providing up to 30 mile electric only range.

LTC Introduces New 288-volt HEV Battery at Munich Fair

Lithium Technology Corporation (LTC) recently announced the introduction of its new 288-volt hybrid electric vehicle (HEV) battery last week at the 2004 Munich Electronics Trade Fair.

LTC chief executive officer Franz Kruger said he expects the battery, developed by LTC's GAIA Europe Unit in Nordhausen, Germany, to replace other energy storage devices in the next generation of hybrid vehicles.

LTC said another one of its GAIA brand HEV batteries was previously used by the Penn State University Future Truck Team in the 2004 Future Truck Competition held at Ford Motor Company's proving ground in June of last year.

TVA Presents Great Smoky Mountains National Park With 14 EVs

The Tennessee Valley Authority (TVA) has donated 14 electric vehicles (EVs) to the Great Smoky Mountains National Park following the park's testing of EVs for the past three years.

TVA had initially loaned EVs to the park for testing in a variety of applications, with Great Smoky Mountains National Park superintendent Dale Ditmanson noting that the vehicles "proved beneficial in a number of ways," including emitting less pollutants and requiring less maintenance.

TVA's donation of the EVs is valued at approximately $100,000.

Radmaxx Commences Delivery of Electric Scooter

Omni Alliance Group, Inc. subsidiary Radmaxx International, Inc. an-nounced this week it has begun holiday season deliveries of its Kicker FX electric scooter.

Radmaxx noted that the battery-powered Kicker FX features a patented folding frame for easy storage and portability.

"We are pleased with the reception and accolades our Kicker FX is receiving," said Omni Alliance Group president Scott Spor. "These orders and others mark the commencement and refinement of the company's commitment to introduce quality battery-powered personal transporta-tion equipment to an ever-demanding market."

Hydrogenics to Develop Fuel Cell Electric Bus for German State

Hydrogenics Corporation recently announced it has been contracted by the Ministry for Transport Energy and State Planning of North-Rhine-Westphalia (NRW), Germany to develop a 17-foot electric hybrid "midi-bus" based on the company's fuel cell hybrid design, which integrates HyPM power module technology.

Under the terms of the contract, Hydrogenics said it will supply full-scale testing and select demonstrations in NRW, with the company to fund 50 percent of the project cost up to 566,000 euros (approximately $735,000).

"This is an exciting opportunity for Hydrogenics as we undertake our first European fuel cell integration project in an effort to advance the commercialization of fuel cell technology in this key region," said Hydrogenics president and CEO Pierre Rivard. "In the context of this project, the state has voiced some exciting ambitions around the demonstration and deployment of zero-emission transit technology and we would like very much to be there with them as they strive for these outcomes."

Local California Town Launches NEV Pilot Program

Local California newspaper the Fresno Bee recently reported that the city of Fresno has launched a new neighborhood electric vehicle (NEV) pilot program.

According to the paper, the program could potentially lead to the development of future electric vehicle legislation in the region.

The Fresno Bee said city officials have expressed concern over the NEVs operating at 25-mile-per-hour (mph) speeds on roads with 45-mph speed limits. (FRESNO BEE: 11/29)

ZAP Signs Vendor-Supplier Agreement With Costco

Electric vehicle company ZAP recently announced it has entered into a vendor-supplier relationship with Costco Wholesale Corporation under which ZAP will supply the nationwide retailer with the newest in its line of energy-efficient and advanced technology vehicles.

Specifically, ZAP noted that its new ZAPPY3 electric scooter is now available at Costco.com, with ZAP chief executive officer Steve Schneider revealing that the two companies are in discussion on a full line of ZAP's products.

Massachusetts Enacts New Electric Scooter Operation Law

The Chelmsford Independent, a Massa-chusetts newspaper, recently reported that a new law governing the use of electric- and gas-powered scooters has taken effect in the state.

The new regulations require compliance with federal motor vehicle safety standards,

adherence to state traffic rules and the possession of appropriate licensing.

Additionally, those operating scooters in Massachusetts will be allowed access to all public ways, but must operate the devices at speeds no greater than 20 miles per hour, wear protective headgear and limit ridership to daylight hours. (CHELMSFORD INDEPENDENT: 12/2)

New French Transportation Network Offers Electric Vehicles

Segway, LLC recently announced that the city of Lille, France and Keolis Group have launched the new "Oxygen Network," a transportation network comprising an oxygen station and oxygen boutique that rent zero-emission transportation devices to the public.

According to Segway, the two facilities rent a total of 16 Human Transporters (HTs) and 25 electric bikes for half-hour, half-day, day, weekend or monthly rates.

"When we began developing the Segway [HT], we envisioned it as an essential part of the transportation continuum, a link that would transport people for the first and last miles of their daily trips," said Segway chairman and founder Dean Kamen.

ETS, EVT America Sign Electric Scooter Distribution Agreement

Mount Vernon, NY-based Electric Transportation Solutions (ETS) has signed a distribution agreement with Miami, FL-based EVT America to offer the EVT electric scooter line through ETS's online electric vehicle department store.

According to ETS, included in the distribution agreement is EVT America's Z20 scooter, which features a two-kilowatt electric hub motor and a range of 40 to 50 miles.

Malaysian Official Warns Electric Bikes Disallowed on Roads

Malaysian transportation minister Datuk Seri Chan Kong Choy announced recently that electric motorcycles are not allowed on the nation's public roads, noting that the vehicles may only operate on private land or "off-road trails."

Additionally, Chan explained that under Malaysia's Road Transport Act of 1987, there is no method to register or license electric motorcycles because registration is based on a vehicle's horsepower, which is measured in cubic centimeters, whereas the power produced by an electric bike's motor is measured in kilowatts. Chan noted that unregistered vehicles cannot be insured and electric motorcycle riders are ineligible for a license to operate the vehicles.

The popularity of electric bikes has increased in Maylasia in recent months due to newspaper advertisements that tout the vehicles, but fail to mention that they are still subject to the Road Transport Act, which requires motorcycle riders to pay a road tax and be properly licensed and insured. (THE STAR: 12/08)

Japan Approves Subsidies for Reva Electric Vehicles

The Japanese government has approved a $2,600 subsidy for every one of Reva Electric Car Company's electric vehicles (EVs) sold in the country.

Reva plans to demonstrate its EVs in select Japanese cities, with vehicle shipments expected to begin within the next few months.

The standard Reva model will be sold for 1.29 million yen (approximately $12,200 USD), with the "higher-end" model to be priced at 1.49 million yen (approximately $14,000 USD).

Prodrive to Build Tango 600 Electric Commuter Vehicle

British automotive technology specialist Prodrive recently announced it has reached a deal with Spokane, WA-based Commuter Cars Corpor-ation (CCC) under which Prodrive will manage the low-volume production of CCC's Tango 600 electric commuter vehicle, construct-ing up to 100 of the vehicles per year at the Prodrive site in Kenilworth, Warwickshire.

According to Prodrive, sales of the Tango 600, which measures 39 inches wide and eight and a half feet long, will be used to support the ongoing development of lower-cost, mass-produced versions of the vehicle.

"Prodrive has all the skills we need to bring the Tango 600 to market," said CCC's Rick Woodbury. "They have their own advanced composites design and manufacturing capabilities and have experience working with the type of racecar roll cages that form the basis of this high-performance vehicle. At the same time, they are used to building, modifying and testing passenger cars to the highest OEM standards."

Prodrive noted that several customers have already placed $10,000 deposits on the initial Tango 600s, which will sell for $85,000, although the target price for a mass-produced version of the Tango is set at less than $20,000.

eBay Suspends Smart Car Auctions Pending 'Americanization'

Electric vehicle manufacturer ZAP recently announced that the online auction of its Smart Car was suspended last week when eBay officials found listings for Smart Car models that do not meet federal regulatory standards.

ZAP said it is still in the process of completing the "Americanization" process for the European microcar. The company noted that bidding for the 2003 model year car was over $27,000 when eBay halted trading on all Smart Car listings on December 15.

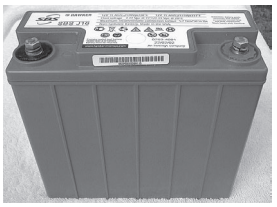
"Competitors are attempting to sell cars on eBay that do not meet federal regulatory compliance, and we want to ensure that every step we take meets the highest standards for the protection of consumers, vendors and shareholders," said ZAP chief executive officer Steve Schneider.

THE AMAZING LITTLE HAWKERS THAT REFUSE TO DIE!

By John Weyland, OEVA member

A while back, when responding to modular charger and battery questions, Lee Hart wrote the following chart:

	cost	power	range	life
Hawker, Optima AGMs	high	high	low	low
Concorde AGMs	med	med	med	med
Flooded golf cart	low	low	high	high



With all the well deserved respect to my friend, I had to laugh at this. As I read the above, I contemplated the baby Optima YT now 8 years old, still working perfectly, and currently under the hood of my Honda Insight serving duty as a temporary 12V system battery until I get a new Optima group 51 Yellow Top for it, a recent new product made especially for Honda cars.

I also had to laugh, as I went out to Blue Meanie and took it for a spirited drive, with a tire spinning launch where the 5 year old Optimas instantly gave 1000+ amps. I've had these in the car for about two years, but they were originally part of the 17 Optimas that lived in the belly of my former Zombie tow rig, the old Ford AreoStar van....hence, the five years in service bit. I get more range per charge with the Optima pack in Blue Meanie than when it used to have (a long time ago) the same or at least similar weight in flooded type batteries, and yes, this includes golf car batteries from way back in the early 80s!

The only time golf car batteries give the high range Lee lists is when they are a part of a HUGE battery pack, normally 1200 lbs, or so, and, when they are treated to 'easy street' when used with moderate controllers in EVs with lethargic performance....any battery 'should' give high range under this scenario.

As used in the immense battery pack for Red Beastie, nearly 2500 lbs. of them, they gave fantastic range, and fantastic life...they should have, the controller was limited to just 450 amps, and in their series-parallel arrangement of 120 volts, each T-105 Trojan golf car never, ever, saw more than 225 amps of current draw. On steady cruise on level ground at 55 mph, each battery was only asked to give 65 amps or so...that's 10 amps 'less' than their reserve capacity rate.

When golf car batteries are forced to try and keep up with powerful AGMs like Hawkers, Optimas, and Orbitals, they fall on their face, they simply can't compete, they get hot, they spit, ooze, and corrode anything within their vicinity, and their range per charge is anything but impressive, and, their life span is dramatically reduced.

I also had to laugh when considering Hawkers and Lee's grouping of them along with Optimas, as 'low range' and 'low life'. The Hawkers I used in White Zombie survived things golf car batteries could only dream of being capable of! Using 28 of the tiny 13.5 lb. brick sized Hawkers (the same size as those wimpy little batteries that most scooter come with) as the 336V power pack for White Zombie, they were subjected to 750-800 amps current draws and 200+ amp dump charges track side, most of their life!

Amazingly too, after repeated abuse year after year, they lasted and lasted. Oh sure, I blew up quite a few of them...even melted them together as a fused mass of rubble once :-) With just 378 lbs. of batteries in this car, it could do 12 miles range...show me 'any' flooded battery pack of the same weight, that can do that, when driven as a normal car, not crawling around at 15 mph.

The point of this writing though, is the fun scenario that happened at work this past week. Because most of the Hawkers I have used and abused, now for 8+ years, are still hanging around, still not corroding anything, still able to sit l-o-n-g periods of time and be ready to deliver BIG currents, I keep four of them on board my forklift service truck.

On several occasions, I used two of them wired at 24V, as an emergency jump starter for cranking over the V8 diesel engine of this truck, when its pair of large 12V AGMs got sucked down too far for one reason or another and were nearly stone dead. I purposely use an alligator lead jumper pair of smallish gauge wire for such an unorthodox jump-start affair, to act as series limiters.

Connecting them up to the pooped-out starting batteries, would sag the 24V worth of Hawkers down to ~ 18V while delivering 200+ amps (LEM clamp-on meter there to monitor things) into the tired 12V starting batteries at around 13.5V ...yes, the small gauge jumper set gets real hot! The jump charge though, only takes 30 seconds, and right about when they small cables are about to catch fire, I pull the Anderson quick disconnect. The twin starting batteries get boosted in a hurry and the big 'ol cranky diesel spins over swiftly and fires to life!

Until I got a brand new set of Dekas installed for this truck, I used this fast Hawker powered charger on several occasions ... amazing, that 8 years old, tiny and abused Hawkers can still deliver this kind of performance!

This, however, is still not the subject of this weirdo message of mine...

Here's the latest and greatest feat that these Hawkers delivered. When new forklifts arrive at our work facility, they are usually chained down on our BIG tractor flat bed rig. If only one or two are being delivered, they sometimes arrive in the back of a road going tractor-trailer rig, minus their heavy batteries. Still, a new Crown forklift weighs 4000-5000 lbs, even without its 2500-3000 lb. battery.

To get them out of the trailer, we use a powerful Crown rider pallet jack by simply driving it up and into the trailer, and with the stout forks under the new forklift we employ the hydraulic lift power and raise the forklift up a bit. We then back out with the massive load in tow. The other morning however, as I was about to leave the shop for my service call work day, I was summoned over to the dock area to help with a problem.

A trailer was docked at a higher than normal angle, and when the rider pallet jack had lifted the forklift load and was backing out, the underside of the forks had jammed against the dock plate. The powerful series wound motor of the pallet jack could only sit there and smoke its drive tire in vain, as with 5000 lbs. of an FC4000 Crown forkilft bearing down on its forks, all motion had ceased. The forklift was forks forward in the trailer, so its twin front drive tires were in solid contact with the trailer floor, but without its battery installed, it could not be used to help with the problem.

Additionally, there was no way to use another forklift to get and lower-in a battery in the tight confines of the trailer. A set of 2/0 extension cables in the shop were not long enough to reach past the pallet jack and deep into the trailer, either.

About the time they were ready to make up a second 2/0 jumper set in the shop, my younger coworker I've been instructing the past few weeks recalled all my rantings and teachings about EVs, batteries and such, and blurted out, "Hey John, get some Hawkers!"

This immediately brought laughter from some of the old timer forklift wrenches, because they had seen these tiny old batteries in the back of my service truck, and although they had heard about their amazing power ability, they really didn't believe it. One of them commented, "Yeah, like 'those' can move all this steel!' I loved it, because I knew with absolute certainty, that the little batteries that could ...could!

With help from my younger less doubting friends, we grabbed four of the Hawkers and placed them in the cavernous hole where the massive industrial lead acid battery normally goes in the Crown forklift. We interconnected them with short thick gauge cables, then using some Anderson-to-Anderson adapters on hand we plugged the 48V Hawker pack into the new forklift ... this was all accompanied by laughter and a few sneers form the truck driver and others, but most of the fork lift wrenches were watching in anticipation.

Turn the key, the dash lights lit up, and with a mighty spin of the drive tires, the powerful Crown forklift was alive and effortlessly pushing itself and the high centered pallet jack out of the trailer. Once free from the trailer and the pallet jack, the forklift was driven through the shop and parked. Yes, the four 8 year old Hawkers sagged down, and the truck slowed near the end of its travels, but the deed was done!

I don't know about the rest of you, but I'd have to say Hawkers have very long life!

See Ya.....John Wayland

How many EV's on the road

By Noel Adams
evfinder@hotmail.com

I think that most quoted estimates for the number of EVs is low. There were over 1000 RAV4EVs placed on the road and most of them are still going strong, along with 1160 EV1s (although I don't believe they had more than 500 on the road at any given time) with about 100 still running. Then there were about 120 Nissan Altra, 322 Honda EV+, I don't know how many Ranger EVs or Chevy S10Es were put out there but the numbers are quite high. There were 500 Th!nk Cities and a small number of EPICs, Toyota eCom, and Nissan Hyperminis.

From the non-OEM group there is at least 100 Solectria Force along with a number of their Trucks, a little over 300 Sparrows, there were 2500 Citicars and a smaller number of Commutacars and a surprising number of these are still running. Then there were 19 Tropica and a variety of other vehicles such as the Gizmo, Electrek, Freeway, Henney Kilowatt, Bradley, US electricar etc and I am sure there are hundreds of home built conversions out there.

If you count NEVs (and I would) there are over 20,000 GEMS on the roads in the US along with a few thousand Th!nk Neighbors, some Lidos, Dynasty ITs, Harland EVs, Lafayette Car Company, and Columbia Par Car vehicles floating around.

That is only in the US, there are over 5000 EVs from Peugot, and Renalt in France, There were over 5000 City-Els build and sold in Germany and Denmark, there are a large number of Twike and Kewet throughout Europe and in Norway there is the Th!nk City, in India there is Reva and in China there is Habo.

In the UK there are thousands of electric milk floats that travel the roads of Britain everyday delivering milk.

The big problem with working out how far they travel is that the home built and non OEM EVs tend to get used quite a bit until the batteries get trashed then they tend to sit under a tree somewhere for a few years until someone decides to get rid of it. It is then bought by someone else who gets it running and drives it around until they trash the batteries then it's back under the tree.

Still, I would say that we have had at least one billion miles of EV travel in the past 10 years.

Seattle Metro Says New Hybrid Buses Have Low Fuel Economy

The Associated Press (AP) recently reported that King County, WA Metro officials have revealed that the area's new hybrid electric transit buses are demonstrating a lesser fuel efficiency than originally expected, approximately the same amount as standard diesel buses.

According to AP, Metro officials said the hybrid buses, which cost approximately $200,000 more than diesel-powered buses, were expected to achieve a 20-to-40 percent fuel savings.

AP noted that King County Metro has ordered a total of 235 hybrid buses for $152 million.

EV SPOTTED IN BARCELONA, SPAIN

Side view of EV minivan.

Rear view.

By Tom Dowling, CEAA
Photos by Tom Dowling

On a recent trip to Greece, Malta, Italy, France, and Spain, I sopped only one battery EV.

I did see ETBs (Electric Trolley Buses) in Athens and Naples. Athens has the largest trolley bus fleet in Western Europe, with about 400 trolley buses, almost all of them quite new.

Although this EV was spotted in Barcelona, it appears to be an Italian EV from this firm:
http://www.micro-vett.it

Charging port inlet, open

Closeup of front logos.

Charging port inlet, closed.

By Nancy Hazard
NESEA Executive Director

Dear friends of the Tour de Sol:

Plans for the May 13-16 Tour de Sol are really exciting—and we hope that you will want to be part of it all!

Early registration Deadline is March 1. Final registration for the Tour de Sol Championship is March 15.

Please let us know of your intent to register:
Nancy Hazard
NHazard@NESEA.org
Pat Skelly
ecomom2001@yahoo.com

And visit www.TourdeSol.org for details! Registration Forms are at:
http://www.nesea.org/transportation/tour/2005championship.html

Here are some highlights of the Tour de Sol Championship:

Site: Saratoga Springs, NY:

May 12: Teams: Please plan to arrive on Thursday—we may have a special event for you!

May 13: Tech testing, Autocross, and team-to-team sharing

May 14: The Tour de Sol will be featured at Saratoga's Spring Auto show NESEA's new Monte Carlo-style Rally participants will join us. 5,000 visitors, 500 vehicles on display, food court, and much more!

May 15: Range day to an area attraction & e-bike day, And a seminar on plug-in hybrids, hydrogen vehicles and more!

Site: Albany, NY:

May 16: Awards Ceremony & meet NYS legislators at Albany's Empire State Plaza Stay tuned for special afternoon activity

Teams: To learn more — join us for a conference call:
Thursday, Feb 10
between 5:30 - 6:30 PM
To join call:
508-995-6619
passcode: 523

Contact Pat Skelly with your registration questions:
ecomom2001@yahoo.com
609-586-6992 day or evening

Note: *We have a separate registration form for those interested in the e-bike event, or the Monte Carlo-style Rally. They will be posted on the www.TourdeSol.org web site early next week.*

December 15, 2004

EAA Funds CalCars' PRIUS+ Plug-In Hybrid Project

The Electric Auto Association has voted to support the California Cars Initiative (CalCars), contributing funds and urging its members to join the effort to make "plug-in hybrid electric vehicles" (PHEVs) available to drivers worldwide.

The EAA declared its financial support in the form of a multi-phase research and development grant to CalCars' unique PRIUS+ project. "Our first installment represents a substantial and unprecedented expenditure for our group," said EAA Treasurer Gabrielle Adelman. CalCars' PRIUS+ project converts '04-05 Priuses into PHEVs, doubling the Prius' 50-mpg performance. "The goal is to demonstrate the technology and encourage automakers to build PHEVs. The first PRIUS+ prototype is now being tested in the San Francisco Bay Area," said Felix Kramer, CalCars Founder.

Ron Freund, EAA Chairman, explained why the EAA departed from its usual focus on electric-only vehicles (EVs). "PHEVs are inspired. They're a cost-effective way to combine existing technologies bringing the benefits of battery electric technology to market. Adding bigger batteries to conventional hybrid cars gives drivers the opportunity to do most of their everyday driving electrically — with zero pollution. Drivers benefit from the option to recharge every night and start every day 'topped off'. And if it's not convenient to plug in, the hybrid's gasoline engine can take charge and act like a conventional hybrid — propelling the car and recharging the batteries. Finally, mass production of PHEVs will reduce the cost of batteries and other EV components, paving the way to bring pure EVs back into the marketplace," said Freund.

"EAA members have been key participants in meetings, online discussions and garage-level engineering, design, and construction of the first PRIUS+ prototype. At EAA EVents all over North America, we always get queries from the public asking about when and how they can purchase an EV or PHEV. So we wanted to step forward to publicly and financially support this excellent project. Others, who are in a position to do so, should look into this project and consider a tax-deductible personal contribution to help speed progress", said Kim Rogers, EAA Education Program Manager.

Details of the project can be found at www.priusplus.org, which includes pointers to the "open source"-style online group where the latest technical developments are discussed. Currently, DaimlerChrysler's Sprinter commercial van is the only PHEV under development by a major automaker, but small companies have built at universities and a number of PHEVs.

What People Are Saying About Plug-In Hybrids and CalCars' Strategy

Ending the Energy Stalemate: historic report by bipartisan experts from industry, government, labor, academia, and environmental and consumer groups breaks ground in endorsing plug-in hybrids: grid of options points to PHEVs fueled by cellulosic ethanol or bio-diesel as an optimal solution: see extraordinarily clear Summary Matrix outlining options (view or download 78KB PDF from CalCars) or read pages 70-78 in entire report (2.3MB PDF from NCEP).

— National Commission on Energy Policy, Dec. 8, 2004

Why It's a Winner: Hybrid cars are poised for steady growth, and plug-ins improve upon ordinary hybrids because they can cruise in a pure-electric mode... In the grand scenarios of transportation analysts, plug-in hybrids occupy a box of indefinite length straddling those of conventional hybrids in the very near future and, farther out, fuel-cell cars, which experts predict will begin to dominate in 20, 30, or 40 years.

— Institute of Electrical and Electronics Engineers (IEEE) International 2004 Technology Forecast, chose the Daimler Chrysler Sprinter PHEV (now in development) as Category Winner in Electric Power.

Plug-in Hybrid vehicles allow us to use made-in-the-USA energy for most of our driving, breaking the yoke of our dependence on oil. It's time to set America free.

— Institute for Analysis of Global Security, Washington, DC

If by 2025, all cars on the road are hybrids and half are plug-in hybrids, US oil imports would drop by 8 million barrels per day (mbd). Today, the US imports 10 mbd.

— Set America Free, policy report by security-focused organizations including IAGS (above), National Defense Council Foundation, Hudson Institute, Foundation for the Defense of Democracies, Center for Security Policy, former CIA Director Admiral James Woolsey of Committee on Present Danger, American Council on Renewable Energy

There's an elephant in the room, which keeps coming up, only to get put off as unrealistic. It's plug-in hybrids. The California Air Resource Board's staff report ably shows that PHEVs reduce carbon dioxide more than any other vehicle type except all-electrics...And last year's California Energy Commission report on reducing oil dependence also put PHEVs right on top of the list...We can prove to automakers that people will buy these much better cars.

— Felix Kramer, CalCars Founder, testimony at CARB hearing, Sept. 2004

EAA Chapters Conference on April 1st - 3rd

By Mark Farver
mfarver@mindbent.org

EAA Chapters Conference: April 1st-3rd
Take a break from the cold weather and come see EAA and the Austin Area Electric Vehicle Association at the 4th annual EAA National Chapters Conference in Austin, Texas April 1st-3rd.

The event starts Friday night at 7pm with a get-together around the dinner table featuring traditional Tex-Mex and barbecue. Saturday is an all-hands roundup of electrics, hybrids and conversions from around the Great State at the Live Oak Civic Center north of San Antonio. EAA and the Green Building/Hybrid Source welcome you with Ride and Drive opportunities, parades and exhibitors on electric vehicle and green building technologies.

The main event on Sunday: a day-long conference with speakers on Battery and Hybrid Electric Vehicles, battery technologies, the California Cars Initiative and more. Members from EAA's 29 regional chapters will have the opportunity to discuss memberships, event tips, advocacy efforts or just meet other EV enthusiasts. Conference is open to the public and individuals or groups interested in EV technology, advocacy or establishing new chapters are strongly encouraged to attend.

Transportation to/from events and the Austin Bergstrom Airport will be provided, and overnight accommodations are available. Those interested in attending can contact 4eaa@austinev.org for more information.

Annual Board Election Results

By Bill Carroll
SFPEAA & Elections Chair

This year's voting results are in. A total of 194 ballots were received, which is about 25% response. This is about the same level of membership response as the past two years of elections.

The voting breakdown comes to:

Dennis Brandenburg	133	winner
Earl Killian	157	winner
Jerry Pohorsky	165	winner
Marc Geller	160	winner
Scott Leavitt	130	

We also received one write-in vote for the following honorable mentions:

Bill Kuehl
Bill Yule
Donald Whitney
Jack Martin
Rob Neighbor
Steve Lough
Walter Wardroop

The four new Board members will be announced and installed at our Annual National meeting on February 19, in Palo Alto.

Information about the National meeting:

EAA Annual Membership Meeting

Saturday morning, February 19, 2005
10 am - 12 noon PST
Call in on the toll-free phone number:
888 - 583-9625
with Code: 303303,

if you can not make the meeting in person at Hewlett & Packard locale
Bldg 20A Auditorium,
hp.com 3000 Hanover St.
Palo Alto, California.

Board of Directors 2004

Chairman
Ron Freund
chairman@eaaev.org

Membership Chapter Relations West
Will Beckett
membership@eaaev.org

Secretary
Scott Leavitt
secretary@eaaev.org

Treasurer
Gabrielle Adelman
treasurer@eaaev.org

Chapter Relations East
Jerry Asher
ChapterRelationsEast@eaaev.org

Elections Board Calendar
Bill Carroll
electionadmin@eaaev.org

Education Program Manager
Kim Rogers
education@eaaev.org

East Coast Coordinator
Karen Jones

Nick Carter

Delegates:
Tom Dowling - *EV Charging*
charging@eaaev.org

Charlie Garlow - *Junior Solar Sprints*
juniorsolar@eaaev.org

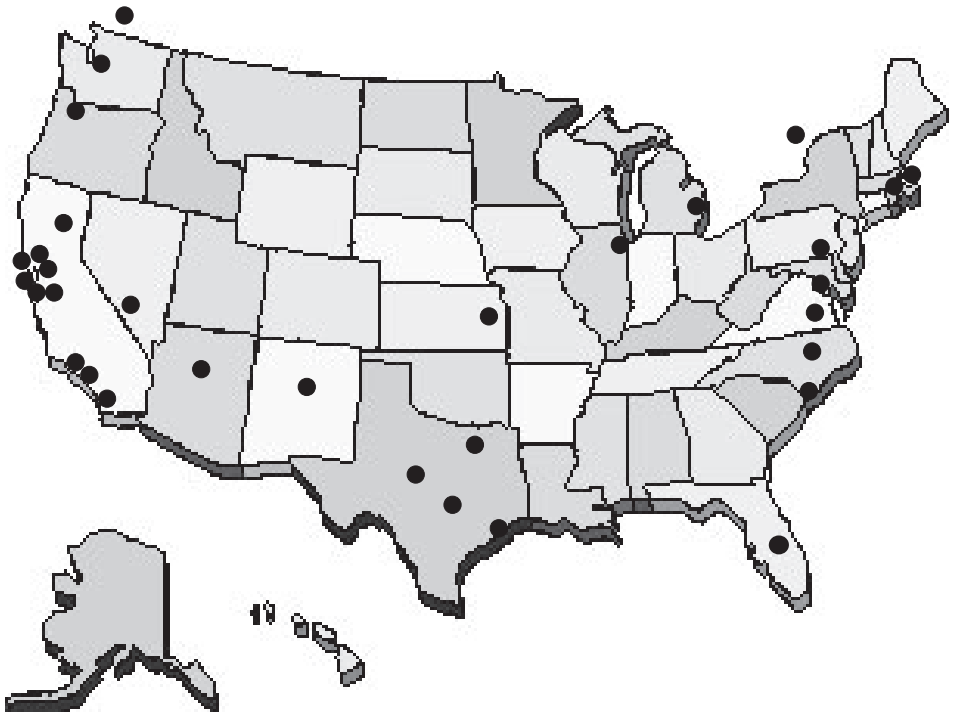
Ed Thorpe - *CE Publications*
ceeditor@eaaev.org

Terry Wilson - *Historian, Awards*
historian@eaaev.org

EAA Board contact:
board@eaaev.org 1-510-864-0662

Notice: IRS requires us to ask for a full disclosure by the donor for donations of $1000 or more. This should include Full Name, Complete Address, Phone Number, and Social Security or Tax ID Number.

ELECTRIC AUTO ASSOCIATION CHAPTERS



CANADA

VANCOUVER EVA (VEVA)
Web Site: http://www.veva.bc.ca
Contact: Haakon MacCallum,1-604-258-9005, info@veva.bc.ca
Mailings: P.O. Box 3456, 349 W. Georgia St., Vancouver, BC V6B3Y4, Canada
Meetings: 3rd Wed./month, 7:30 pm
Location: BCIT Electrical Bldg SE1 Cafeteria - see map on website

EV COUNCIL OF OTTAWA (EVCO)
Web Site: http://www.evco.ca
Contact: Alan Poulsen, 1-613-271-0940, info@evco.ca
Mailings: P.O. Box 4044, Ottawa, ON K1S 5B1 Canada
Meetings: Last Mon./month, 7:30 pm
Location: The Canada Science & Technology Museum, 1867 St.Laurent, Ottawa

UNITED STATES

ARIZONA

PHOENIX EAA (PEAA)
Web Site: http://www.phoenixeaa.com/
Contact: Sam DiMarco, 1-480-948-0719, voltek_2000@yahoo.com
Mailing: PO Box 6465, Scottsdale, AZ 85258-6465, USA
Meetings: 4th Sat./month, 9:00 am
Location: Varies, see Web Site for details.

CALIFORNIA

CHICO EAA (CEAA)
Web Site: http://www.geocities.com/chicoeaa/
Contact: Chuck Alldrin, 1-530-899-1835, calldrin@sunset.net
Mailing: 39 Lakewood Way, Chico, CA 95926-1555, USA
Meetings: 2th Sat./month, 10:00 am.
Location: 1350 East 9th St, Chico, CA

EAST (SF) BAY EAA (EBEAA)
Web Site: http://www.ebeaa.org/
Contact: Ed Thorpe, 1-510-864-0662, eaa-contact@excite.com
Mailing: 2 Smith Ct., Alameda, CA 94502-7786, USA
Meetings: 4th Sat./month, 10:00 am.
Location: 1515 Santa Clara Ave, Alameda, CA

LOS ANGELES EAA (LAEAA)
Contact: Louis Weiss, 1-323-935-2690, warbucks@attbi.com
Mailing: 1811 Hi Point St., Los Angeles, CA 90035-4621, USA
Meetings: 1st Sat./month, 10:00 am
Location: 1200 E California Blvd, Pasadena, CA

NORTH BAY EAA (NBEAA)
Web Site: http://www.nbeaa.org
Contact: Nick Carter, 1-707-573-9361, nick@npcimaging.com
Mailing: 2228 Magowan Drive, Santa Rosa, CA 95405
Meetings: 2nd Sat./month, 10:00 am
Location: See web site or contact for meeting location.

SAN DIEGO EVA (SDEVA)
Web Site: http://home.att.net/~NCSDCA/EVAoSD/
Contact: Chris Jones, 1-619-913-6030, NCSDCA@WorldNet.ATT.net
Mailing: 315 South Coast Highway 101, Encinitas, CA 92024-3543, USA
Meetings: 4th Tues./month, 7:00 pm
Location: 2080 Pan American Plaza, Balboa Park, San Diego

SAN FRANCISCO EAA (SFEAA)
Web Site: http://www.sfeaa.org/
Contact: Sherry Boschert, 1-415-681-7716, shaalub@yahoo.com
Mailing: 1484 16th Ave., San Francisco, CA 94122-3510, USA
Meetings: 1st Sat./month, 11:00 am
Location: Varies, see web site for details.

SF PENINSULA EAA (SFPEAA)
Web Site: http://geocities.com/sfpeaa/
Contact: Bill Carroll, 1-650-589-2491, billcarroll@eaaev.org
Mailing: 160 Ramona Ave., San Francisco, CA 94114-2736, USA
Meetings: 1st Sat./month, 10:00 am
Location: 601 Grand Ave, South SF, CA

SAN JOSE EAA (SJEAA)
Web Site: http://www.geocities.com/sjeaa/
Contact: Terry Wilson, 1-408-446-9357 dongillis@yahoo.com
Mailing: 20157 Las Ondas Way, Cupertino, CA 95014-3132, USA
Meetings: 2nd Sat./month, 10:00 am
Location: 2350 Cunningham Ave., San Jose, CA

SILICON VALLEY EAA (SVEAA)
Web Site: http://eaasv.org/
Contact: Will Beckett, 1-650-494-6922, will@becketts.ws
Mailing: 4189 Baker Ave., Palo Alto, CA 94306-3908, USA
Meetings: 3rd Sat./month, 10:00 am
Location: 3000 Hanover St., Palo Alto, CA

VENTURA COUNTY EAA (VCEAA)
Web Site: http://www.geocities.com/vceaa/
Contact: Bruce Trucker, 805-495-1026, tuckerb2@adelphia.net
Mailing: 283 Bethany Court, Thousand Oaks, CA 91360-2013 ,USA
Meetings: Call or email for location/meetings.

ELECTRIC AUTO ASSOCIATION CHAPTERS

FLORIDA

FLORIDA EVA (FEVA)
Web Site: http://www.floridaeaa.org
Contact: Shawn Waggoner, shawn@suncoast.com
Meetings: Varies, see website

KANSAS / MISSOURI

MID AMERICA EAA (MAEAA)
Web Site: http://maeaa.org/
Contact: Mike Chancey, 1-816-822-8079, eaa@maeaa.org
Mailing: 1700 E. 80th St., Kansas City, MO 64131-2361, USA
Meetings: 2nd Sat./month, 1:30 pm
Location: See web site for details.

ILLINOIS

FOX VALLEY EAA (FVEAA)
Web Site: http://www.fveaa.org/
Contact: Bill Shafer, 1-708-771-5202, assessorbill@cs.com
Mailing: 1522 Clinton Place River Forest, IL 60302-1208, USA
Meetings: 3rd Fri./month 7:30 pm
Location: 2000 Fifth Ave., River Grove, IL

MASSACHUSETTS

NEW ENGLAND EAA (NEEAA)
Web Site: http:/neeaa.org/
Contact: Tony Ascrizzi, 1-508-799-5977, tonyascrizzi@juno.com
Mailing: 34 Paine Street, Worcester, MA 01605-3315, USA
Meetings: 2nd Sat./month, 2:00 pm
Location: Call or email for meeting location.

PIONEER VALLEY EAA (PVEAA)
Web Site: http://geocities.com/pveaa/
Contact: Karen Jones, 1-413-367-9585, pveaa@hotmail.com
Mailing: P.O. Box 153, Amherst, MA 01004-0153 USA
Meetings: 3rd Sat./month, 2:00 pm
Location: 43 Amity Street, Amhurst, MA.

MICHIGAN

DMC-EAA DETROIT MOTORCITY CHAPTER (DMCEAA)
Web Site: http://geocities.com/detroit_eaa/
Contact: Richard Sands, 1-734-281-4087, rsands01@comcast.net
Mailing: 13162 Fordline St, Southgate, MI 48195-2435, USA
Meetings: Call or email for location/meetings.

NEVADA

LAS VEGAS EVA (LVEAA)
Web Site: http://www.lveva.org/
Contact: William Kuehl, 1-702-645-2132, bill2k2000@yahoo.com
Mailing: 4504 W. Alexander Rd., N. Las Vegas, NV 89032-2836, USA
Meetings: 3rd Sat./month, 10:00 am
Location: 1401 E. Flamingo Rd, Las Vegas, NV

NEW MEXICO

ALBUQUERQUE EAA (AWAA)
Web Site: http://abqev.org
Contact: info@abqev.org
Mailing: 1013 Tramway Ln NE, Albuquerque, NM 87122-1316, USA
Meetings: 1st Tues./month, 7:00 pm
Location: Shoney's Restaurant, 6810 Menaul NE, Albuquerque, NM

NORTH CAROLINA

COASTAL CAROLINAS (EAACC)
Contact: Jayne Howard, 1-910-457-4383, EAAofCC@aol.com
Mailing: 4805 E. Southport Supply Rd., Hwy 211, Southport, NC 28461-8741, USA
Meetings: Varies, call for details.
Location: 4805 E. Southport Supply Rd., Hwy 211, Southport, NC

TRIANGLE EAA (TEAA)
Contact: Peter Eckhoff, 1-919-477-9697, teaa@rtpnet.org
Mailing: 9 Sedley Place, Durham, NC 27705-2191, USA
Meetings: 3rd Tues./month, 5:30 pm
Location: check web site for location: http://www.rtpnet.org/~teaa/

OREGON

OREGON EVA (OEVA)
Web Site: http://www.oeva.org/
Contact: Ralph Merwin, prizmev@yahoo.com
Mailing: 2905 NE 29th Ave., Portland, OR 97212-3558, USA
Meetings: 2nd Thur./month, 7:30 pm
Location: SW Salmon & 1st St, Portland, OR

PENNSYLVANIA

EASTERN EV CLUB (EEVC)
Web Site: http://members.aol.com/easternev/
Contact: Peter Cleaveland, 1-610-828-7630, easternev@aol.com
Mailing: P.O. Box 717, Valley Forge, PA, 19482-0717, USA
Meetings: 2nd Wed./month, 7:00 pm
Location: 201 E Germantown Pk, Plymouth, PA

TEXAS

AUSTIN AREA EAA (AAEAA)
Web Site: http://www.austinev.org/
Contact: Aaron Choate, 1-512-453-2890, info@austinev.org
Mailing: PO Box 49153, Austin, TX 78765, USA
Meetings: Call or email for location/meetings.

HOUSTON EAA (HEAA)
Web Site: http://www.heaa.org/
Contact: Dale Brooks, 1-713-729-8668, brooksdale@usa.net
Mailing: 8541 Hatton St., Houston, TX 77025-3807, USA
Meetings: 3rd Thurs./month, 6:30 pm
Location: 3015 Richmond Ave., Houston, TX

NORTH TEXAS EAA (NTEAA)
Web Site: http://www.geocities.com/nteaa/
Contact: Paul Schaffer, 1-972-437-1584, pshf@hotmail.com
Mailing: 430 Ridge Crest, Richardson, TX 75080-2532, USA
Meetings: Varies, call/email for details.

VIRGINIA

CENTRAL VIRGINIA EAA (CVEAA)
Contact: Ernest Moore, 1-804-271-6411, ernie_moore@yahoo.com
Mailing: 4600 Melody Ct., Richmond, VA 23234-3602, USA
Meetings: 3rd Wed./month, Call for details.
Location: Westwood Ave., Richmond, VA.

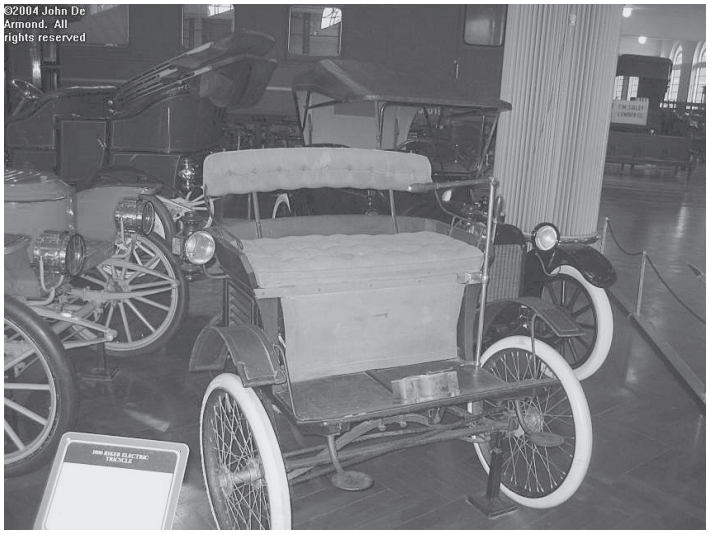
WASHINGTON

SEATTLE EVA (SEVA)
Web Site: http://www.seattleeva.org/
Contact: Steven Lough, 1-206-524-1351, stevenslough@comcast.net
Mailing: 6021 32nd Ave. NE, Seattle, WA 98115-7230, USA
Meetings: 2nd Tues./month, 7:00 pm
Location: See website, call for details.

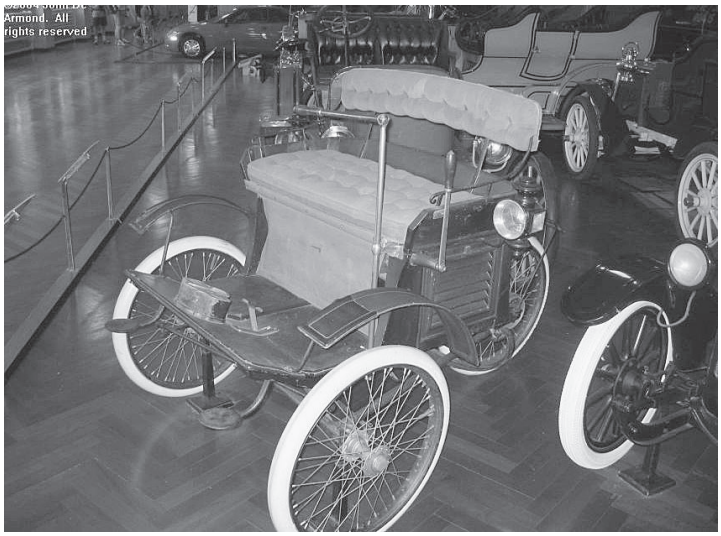
WASHINGTON D.C.

EVA OF WASHINGTON DC (EVA/DC)
Web Site: http://www.evadc.org/
Contact: David Goldstein, 1-301-869-4954, goldie.ev1@juno.com
Mailing: 9140 Centerway Rd., Gaithersburg, MD 20879-1882, USA
Meetings: 2nd or 3rd Tues./month, 7:00 pm
Location: Building 31-C, 6th, Bethesda, MD.

Listing updated, verified and current as of this issue. Check main web page for any changes in current listing. The Electric Auto Association is a 501 (c)(3) nonprofit organization.



Riker sitting among other 1900's cars.

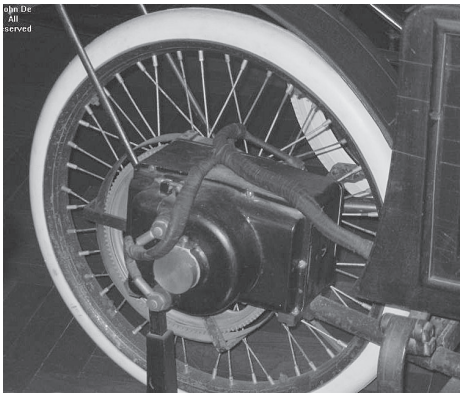


Another museum shot, with EV1 in the background.

By "Neon" John De Armond
[johngd@bellsouth.net]

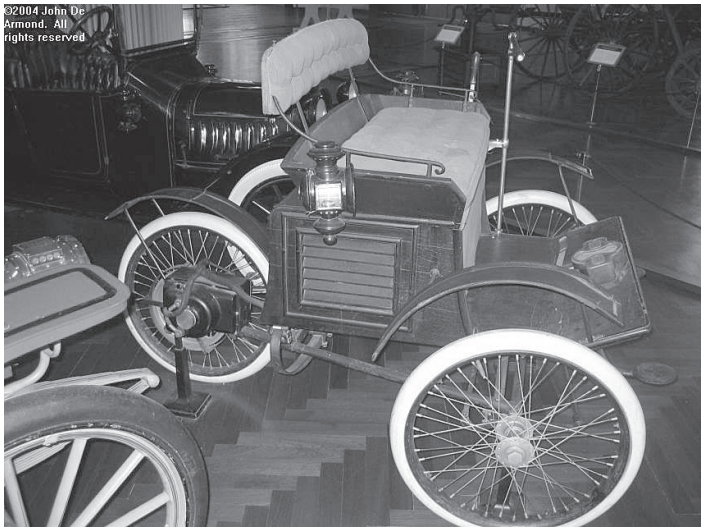
While I was in Dearborn, MI, I took in the Henry Ford Museum and the adjacent Automotive Hall of Fame. Among other things of interest to EVers was the 1896 Ryker Trike.

Basically it's a great grandfather of the Corbin Sparrow, without the fancy fiberglass. It has two wheels up front and one in the rear. The motor mounted to the swing-arm. It has a 40 volt system with a 750 watt motor. Range was 20 miles at 20-30 mph, with a max speed of 45 mph. For gearing, it has 3 forward speeds, two reverse, with 8:1 step-down from the motor to the wheel.

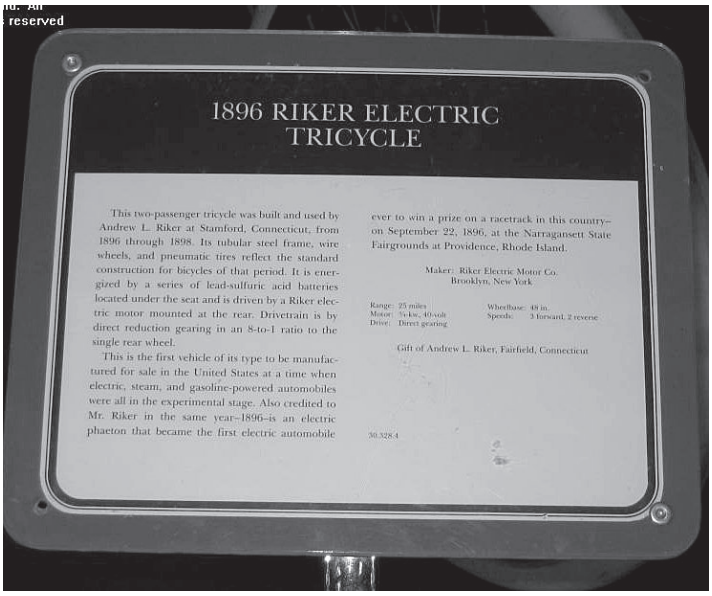


Rear wheel with motor/gear/pulley system.

Speed control and Volts/Amps metering



Side view with bented batteries under the seat.



Description plaque.

EAA MERCHANDISE

-- General Items --

	*License Plate Holder, black plastic frame, white lettering on visible green.*	LICPH1	$10.00	
License Plate	*Motorcycle size, only in metal & black or chrome. (Special order, need additional 6 weeks.)*	Black: LICPH2-B Chrome: LICPH2-C	$14.00	
	*Embroidered Sew-On Patch, white. (Special order, allow an additional 3 weeks.)*	PATCH1	$ 9.00	
	*Embroidered Sew-On Patch, green. (Special order, allow an additional 3 weeks.)*	PATCH2	$ 9.00	
	*Embroidered Bucket Hat, comes in: small/medium & large/xlarge.*	S/M: DCP01-SM L/XL: DCP01-LXL	$25.00	
	*Ceramic Coffee Mug.*	MUG003	$ 5.50	
	*Insulated Car Coffee Mug.*	MUG02	$ 6.50	
	*Embroidered Polo Shirt (Forest or navy S,M,L,XL,XXL), 10 weeks for all colors other than Forest.*	SHIRT01-F-S SHIRT01-F-M SHIRT01-F-L SHIRT01-F-XL SHIRT01-F-XXL Same for SHIRT01-N-…	$40.00	
	*EAA Car Window Shade.*	SS001	$ 8.00	
	*EAA Bumper Sticker #1 (10.5"x3.75").*	BS800	$ 2.00	
	*EAA Bumper Sticker #2 "The Switch is on"(15"x3.75")*	BS002	$ 2.00	

-- EV Buyers Guides --

	**Electrifying Times Preview 2004 *Electrifying Times Preview 2000 *1997 EV Buyers Guide *1996 EV Buyers Guide *1995 EV Buyers Guide*	ET2002 ET1999 BG1997 BG1996 BG1995	$ 5.95	

-- Literature --

	*Convert-It EV conversion Book*	CONV01	$24.95	
	*KTA Electric Vehicle Kits & Component Parts Catalog*	CATAL1	$5.00	
	Window Literature Holder (light plastic)	WL002	$15.00	
Indicate Month/Year and/or Vol #, back 20 yrs.	*Back issues of CE (Current EVents) magazine*	CE001	$ 3.00	

-- Special --

	*AVCON to 14-50 adapter kit - sheet metal box, 14-50 outlet (2 hots and a ground, no neutral), for 220 VAC chargers, no 120 VAC (6weeks)*	ADAPT1	$255.00	
(fill out complete membership form on flip side of page)	***Electric Auto Association Membership ($10 rebates to local chapter.)***	***6 /year of Current EVents, member voting rights***	$39.00	

Shipping: USA 10%, Canada 15%, All Others 20% of subtotal
Handling $2.00 Send check (USA dollars) to:

EAA Merchandise, 5820 Herma St, San Jose, CA 95123 USA

Electric Auto Association (EAA) Membership Application Form

Copy and fill out this form, attach a check or money order or use PayPal in US funds only for $39 ($42 Canada) ($45 International) payable to **Electric Auto Association** . You can fold this form as indicated and mail it with your payment enclosed. Use tape to seal the form before you mail it. Or send information in this form and pay through PayPal using http://eaaev.org/membership.htm.

New Member: ❑ Renewal: ❑ Country (if non-USA):_____ Date: _____

Name: _____ *email: _____

Mailing Street Address: _____ Home phone#: _____

Mailing City, State & ZIP: _____ *Work phone #: _____

*Do you ❑ own or ❑ lease an Electric Vehicle? ❑ Production ❑ Conversion ❑ Bicycle ❑ Other:_____ ❑ No

I support the _____ EAA Chapter, or please select an EAA Chapter closest to me. ❑

(*optional) All information in this application is for the exclusive use of the EAA and not be sold or given to any other organization.

(fold back ward, this will protect your personal information, placing it on the inside)

Please Identify your primary areas of interest relating to the EAA (check as many as you wish):

❑ Hobby/Builder ❑ Professional (income) ❑ Competition (Rallies, Races, Records) ❑ Owner/Driver
❑ Environmental/Gov. Regs. ❑ Social (Rallies, Shows, Dinners) ❑ New Technology & Research
❑ Promotion & Public Awareness of EVs ❑ Student or General Interest ❑ Electrathon/Bicycle/other

The Electric Auto Association www.eaaev.org

Providing free Electric Vehicle information to the public since 1967'

The Electric Auto Association is a non-profit, 501(c)(3) for the promotion of electric vehicles. Membership includes the informative complementary EAA publication, **Current EVents** . Donations are tax deductible. All information and statistics in this application are for the exclusive use of the EAA and is not sold or given to any other organization or company.

From your membership dues, a percentage goes to the EAA Chapter you support for public Electric Vehicle promotion EVents like rallies, shows and EV rides.

(fold the bottom half under. This will now be the front of the letter. Be sure to seal it with tape)

Return address

_____

_____

_____

membership@eaaev.org

1st Class Postage Here

Electric Auto Association
Membership Renewals
4189 Baker Ave.
Palo Alto, CA 94306-3908 USA

EV CONFERENCE AND EAA CHAPTER EVENTS CALENDAR

January 7 - 16, 2005
Greater LA Auto Show
Los Angeles, California USA
Located at the Los Angeles Convention Center, this New Years event will unveil many new cars, including the 2005 Venturi Fetish (a Monaco-based EV), Commuter Car's Tango (first production results), and Louroe Electronics EV (from Los Angeles area). There might even be a Volvo 3CC
Web Site: http://laautoshow.com/

January 15 - 21, 2005
FC Expo 2005
Tokyo, Japan
The first international tradeshow specialized in exhibiting fuel cells and hydrogen related technologies/products.
E-mail: fc@reedexpo.co.jp
Web Site: http://www.fcexpo.jp/english

February 19, 2005
EAA Annual National Membership Meeting
Palo Alto, California, USA
Annual meeting, for review of 2004 year, looking forward to 2005 and installation of new Board members. For those who cannot attend in person, Use toll-free (USA only) teleconference number to participate. 10-12 PST, call in starts at 9 am
Teleconference: 1-888-583-9625,
Code: 303303#
Web Site: http://www.eaaev.org

April 2005
Earthday Events
Everywhere
Various local celebrations of Earthday. Plenty of opportunities to participate with EVs, from display to presentations and rides.

April 1-3, 2005
4th EVer Electric Auto Association Chapters Conference
Austin, Texas, USA
Hosted by the Austin Area Electric Auto Association.
Email: 4eaa@austinev.org
Web Site: http://www.austinev.org

April 1 - 2, 2005
EV Challenge, Final Events
North Carolina, USA
Premere College EV event, sponsored by the Triangle EAA Chapter, to promote education and student exposure to EVs. Friday events are High School Oral Presentations, Trouble Shooting, Design Judging, Technical Inspection and the Range Event. Saturday's events at Wakefield High School will be the High School Autocross and Middle School Junior Solar Sprint.
Web Site: http://www.evchallenge.org

April 2 - 6, 2005
EVS 21: The 21st Worldwide Battery Hybrid and Fuel Cell Electronic Monte Carlo, Monaco Vehicle Symposium & Exhibition
Developers and investors will explore and present viable solutions of advanced vehicle technology towards their vision for sustainable mobility.
E-mail: info@evs21.org
Web Site: http://www.evs21.org

April 9, 2005
Wicked Watts
Las Vegas Motor Speedway, Las Vegas, Nevada, USA
First EV drag racing of the New Year.
Web Site: http://www.nedra.com

April 11 - 15, 2005
International Hydrogen + Fuel Cells Group Exhibit, Hannover Fair
Hannover, Germany
The world's biggest commercial exhibition on Hydrogen + Fuel Cells, with 24 countries representing their latest H2/FC developments and products.
E-mail: arno@fair-pr.com
Web Site: http://www.fair-pr.com

April 23, 2005
EBEAA EV Display and Drive/Ride Rally
Concord, California, USA
Annual East (SF) Bay Chapter EV Rally, part of the public outreach and EV exposure.
Web Site: http://www.ebeaa.org

May 13 - 16, 2005
2005 Tour de Sol
Saratoga Springs & Albany, New York, USA
18th annual green car show and performance rally, for EVs and alternative fuel vehicles.
Web Site: http://www.TourdeSol.org

June 4, 2005
REV2005!
Vancouver, BC, Canada
Annual Vancouver Chapter EV event, with parade, EV displays, EV rides, Electrathon races and Junior Solar Sprints.
Web Site: http://www.veva.bc.ca

June 11, 2005
Power of DC
Mason-Dixon Dragway, Hagerstown, Maryland, USA
The premiere East Coast EV drag racing event.
Web Site: http://www.powerofdc.com

Note: EAA Chapters.
Any major event information should be sent to cenews@eaaev.org for inclusion in the newsletter, at least 2-3 months ahead of event date. If you have recurring annual events, please provide New Year schedule at the start of the year. We want to maintain focus on EAA-specific events.

EAA **Chapter** Event =
EV related **Event** =
EV related **Conference** =

ELECTRIC AUTO ASSOCIATION
2 Smith Ct, Alameda, CA 94502-7786

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