F.V.E.A.A. NEWSLETTER

October 1992

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NEXT MEETING

October 16th @ 7:30
College of Dupage
Student Resource Center
Room 1046
Use Lambert Rd. Entrance, Lot 7 at the Southeast corner of 22nd & Lambert
Nonmembers are always welcome!

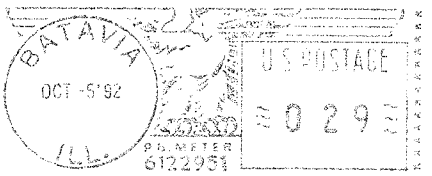
MEMBERSHIP INFORMATION

Membership to the Fox Valley Electric Auto Association is open to the public. Anyone interested in electric vehicles or electric transporation are encouraged to join. The cost to join is $15 per year from November to November. If joining in the middle of the year the cost is $1.25 for every month remaining til November of that year. The cost for new members joining this month is $1.25.

October 16th Guest Speaker:
Zinc/Bromine Technology Program Manager, Phillip Eidler of Johnson Controls

Phillip Eidler of Johnson Controls will discuss their development of the Zinc/Bromine battery technology.

Fox Valley Electric Auto Association
336 McKee Street
Batavia, IL 60510



First Class

ADDRESS
CORRECTION
REQUESTED

John Emde
6542 Fairmount Avenue
Downers Grove , IL 60516
USA

PREZESZ

The October meeting will prove to be most interesting with the visit of Phillip Eidler of Johnson Controls. I hope that everyone will make every effort to attend. He will not only discuss the technology but the battery business as a whole. Johnson Controls is North America's largest manufacturer of batteries. Very few, if any actually carry the Johnson Controls name tag, but rather the likes of Die Hard, etc. With each of the big three automakers already staking claims on their favorite battery technology and non of which are locking on to the Zinc/Bromine, what is likely to happen? With Ford taking on Sodium/Sulfur, GM with Lead Acid and Chrysler with Nickel/Iron, and the all three plus the government putting their research into Metal/Hydride, what is going on? Maybe Phillip Eidler can shed some light on this subject.

In other battery news the B.A.T. Technology group in Salt Lake City Utah that I have spoken about before have gone to further lengths to prove that their "Bat Juice" is legitimate and that their battery technology is superior, put up $25,000 in an electric vehicle challenge. An Electric Vehicle race from SLC to Wendover Utah (125 miles) on the highway. Entrants are not allowed to charge along the way or perform battery exchanges. No one took them up on the challenge and BAT drove from SLC to Wendover to SLC to Wendover and half way back at highway speeds before running out of juice. The Geo Metro they were driving carried only 400 lbs of lead acid batteries.

B.A.T. has announced that they have received a contract to produce 500 Ford Ranger truck with electric drive. More on this story in future issues.

At the August meeting their was a request to publish additional information on the Electrothon class of EV vehicle races, with the idea that the FVEAA would consider organizing such an event here in the Midwest. Well, here it is. Most of the information in this issue is focused on the Electrothons. This class of racing was started in England and has experienced its greatest popularity in Australia. It has since caught on in California and should become nation wide as EV's become more of a common subject. The idea behind the Electrothon is to create an event that is affordable. Vehicles can be built in a weekend for under 1,500 dollars. This allows schools and individuals to experience EV technology at an affordable level.

I am heading to Solar and Electric Vehicle symposium in Boston this week. I will be speaking on the Electric Vehicle manufacturers that exist today. I will provide a full report at either the October or November meetings.

Sincerely.....Douglas F. Marsh

ELECTIONS

Elections for club officers will be take place at the November meeting. I encourage anyone interested in being involved to run for a position. It is absolutely necessary for that members become involved to some degree in order for the club to effective. It doesn't take much.

Nexus

Schmid promotes cleaner air, travels on electricity

Benjamin Schmid, M.D., Internal Medicine/Gastroenterology, made a commitment to cleaner air last June when he began driving a battery-powered vehicle to and from his office and the hospital. The converted gasoline vehicle is powered by 18 six volt batteries which can be recharged with an ordinary outlet. Its driving range is 35 to 50 miles with a top speed of about 55 miles per hour.

According to Dr. Schmid, electric vehicles produce ninety per cent fewer pollutants, even when power plant emissions are taken into account. Maintenance costs and daily operating costs are less than gasoline powered cars. "I think electric cars would be appropriate replacements for second family cars of which ninety per cent are driven less than 30 miles a day anyway," Dr. Schmid said. "They could help decrease our country's dependence on oil imports and cut down on air pollution." ▼

Dr. Schmid checks the batteries in his electric car.

ELECTRATHON REGULATIONS

1. ELIGIBILITY

Eents are open to any individual, club, educational institution, or organization, providing compliance with the regulations.

VEHICLES

Vehicles must comply with the relevant design rules for each event. The vehicle must only be propelled by electric motors.

3. DRIVERS

Drivers must be at least 14 years of age and weigh at least 160 lbs. fully clothe or supplemented with ballast to reach that weight. The ballast must be fitted into the vehicle and may not be removed during the event. All drivers must demonstrate to the officials driving competence at trials or scrutineering days prior to the event. Special arrangements will be made for interstate competitors.

4. DRIVER SAFETY

Electrathon: A safety helmet conforming to Motor Cycle must be worn by competitors.
All drivers must wear leather or good quality vinyl gloves and be fully clothed and wear enclosed shoes or boots.
The "head first" driving position is not permitted in 3 or 4 wheeled vehicles.

5. VEHICLES SAFETY

Vehicles must comply with the design rules set down for the event. All vehicles will be subject to scrutineering.

6. VEHICLES SPECIFICATION

See the design rules.

8. SCRUTINEERING

All registered vehicles must be presented for scrutineering (except interstate entrants) on Scrutineering Day. All vehicles will be checked to see that they comply with the appropriate design rules. Scrutineering will be in two parts:

1. *The vehicle will be checked first for construction and safety.*
2. *The registered drivers will have to demonstrate the stability and braking of the vehicle.*

During this last test a lap will be timed to give the entrant's grid seeding. Any vehicle that does not pass scruineering on the day will have to pass on the morning of the "electrathon". Any modifications made to the vehicle after scrutineering will have to be approved by the scrutineer. The scrutineer has the right to weigh any batteries prior to the vehicles being allowed onto the track. All drivers and riders must be present to demonstrate their driving skills and be weighed with their ballast (if required).

9. GRID SEEDING

Vehicles will be grid seeded according to the lap times on Scrutineering Day. Interstate competitors will be given grid positions as determined by the competition Director.

10 DRIVING SKILLS

All drivers must obey the rules of the event. All drivers are requested to keep to the left to allow passing on the right. Passing on the left is permissible when safe. The person on the right will always have right of way provided their vehicle is ahead of the vehicle on the left. All driver changes must be made in the pits area. All vehicle repairs must be carried out on the side of the track or the pits area. The vehicle may not be pushed at any time. Any vehicle that becomes undrivable at any time must pull off the track or in the pits area. The vehicle may not be pushed at any time. Any vehicle that becomes undrivable at any time must pull off the track immediately and make the necessary repairs before rejoining the event. All drivers must obey the flag marshals and stewards. The stewards will stop and caution any drivers considered to be acting in a dangerous or unsportsmanlike manner.

FLAG SIGNALS

RED FLAG	STOP IMMEDIATELY
YELLOW FLAG	CAUTION-OBSTRUCTION AHEAD
GREEN FLAG	ALL CLEAR-OBSTRUCTION CLEARED
BLACK FLAG	PULL INTO THE PITS AREA IMMEDIATELY

11. WINNERS

Electrathon: after 60 minutes but not longer than 62 minutes; or 120 minutes but no longer than 122. The competitor with the most number of laps and or first past the finish line will be deemed the winner.

12. PROTESTS

Provisional results will be announced immediately after the completion of the event.
Protects may only be made by the team manager and be lodged with the competition director within 5 minutes after the event.
The competition directors' decision will be final.

ELECTRATHON DESIGN RULES

Types of Vehicles:

All vehicles must be either three or four wheelers. All wheels must be load bearing.

Brakes:

Two or more in-line wheels must be braked.

Regenerative braking may be used in conjunction with mechanical brakes but not on its own.

Vehicle must be able to stop within 50 feet (in dry weather) from 25 mph or from the vehicle's top speed if it is less than 25 mph.

Batteries:

60 pounds of batteries if the driver and ballast weight is 150 pounds or more: 70 pounds if the driver and ballast weight is 210 pounds or more. Conventional , production batteries are recommended. Non-rechargeable or exotic batteries are not permitted.

Battery Mounting:

Batteries must be secured to the frame of the vehicle.

Batteries must be protected from accidental damage and acid spillage onto the driver/rider.

Solar Panels:

1.0 square meter of collection are is permitted. The panel must not protrude beyond the body work of the vehicle. No gallium arsenide cells.

Collection are is the are of active solar cell material including surface conductors but not including gaps between cells. Calculations must be submitted.

Motors:

May be any electric type.

Motor Control:

Motor power must switch off when motor switch or speed control is released. No override control will be permitted.

Any power required for control systems must come within the battery weight limit specified above.

Number of Motors:

Unlimited.

Type of fuse:

HRC type fuse, fusible link or blow type.

Fuse Rating:

Current rating of wiring. (See Wiring)

Number of Fuses:

One for each battery tap.

Location of Fuses:

As close to the batteries as possible. Fuses must be covered so that battery gases cannot be ignited.

Isolation Switch:

This switch must be a DC switch and its break current rating must be equal to twice the fuse rating. A HRC fuse in household type fuse holder with a ring pull attached is recommended.

Location of Switch:

This switch must be easily accessible and visible by the driver and marshalls. Two switches may be fitted to satisfy the above requirements. Switch to be mounted inside aa RED triangle whose sides are 4 inches.

Wiring:

Wire used must be of a suitable size so that the safety fuses will always blow first without the wire insulation melting.

Wiring should be neat, well insulated, and securely tied to the frame or body. All terminations must be made so that they will not come off under normal use.

Horn:

Bicycle air horn or electrical horn is recommended and it must be mounted so that its sound is clearly audible at 70 feet.

Mirrors/Vision:

Two non-tinted flat mirrors must be fitted to vehicle and should be mounted as close as possible to the driver's head to achieve good rear vision.

In fully enclosed vehicles, vision must be adequate in all weather conditions.

Vehicle Length:

Maximum length is 13 feet.

Vehicle Width:
Maximum width is 5 feet.

Vehicle Height:
No limit.

Vehicle Number:
A clearly visible space 10" wide by 12" high on each side of the vehicle must be provided to mount the numbers.

Vehicle Number Location:
The numbers must be mounted on both sides of the vehicle and be clearly visible.

Turning Circle:
Maximum 50 feet curb to curb.

Roll Bars:
All vehicles must have roll bars and padding to protect the driver from front or rear collisions and roll over. Bars must protrude at least 1" above the drivers helmet.

Driver Train:
All chains, gears, etc. must be covered if they can endanger the driver.

Aerodynamics:
Vehicles may fit aerodynamic bodies and fairings provided they do not make the vehicles unsafe in windy conditions.

Vehicle Construction:
Vehicles must be free of sharp protrusions.

Padding must be provided where necessary to prevent the driver from being injured in an accident.

Spoked wheels should be guarded if they are close to the driver. Construction of steering, frame and wheels must be of suitable materials that will not fail during emergency braking and maneuvering.

Driving Position:
Prone, head first position is not permitted.

Driver Age:
Minimum, 14 years old.

Driver Weight:
Drivers must weigh at least 150 pounds if 60 pounds of batteries are used or at least 210 pounds if 70 pounds of batteries are used.

Driver Ballast:
Drivers under the weight limit must be ballasted up to the minimum for their battery weight. The ballast must be attached securely to the vehicle's frame.

The ballast must be fitted to the vehicles before the event and may not be removed during the event. If more than one driver is registered for the same vehicle then ballast for the lighter driver must be fitted.

Driver Safety Equipment:
A helmet conforming to AS1698(M/Cycle) or better must be worn.

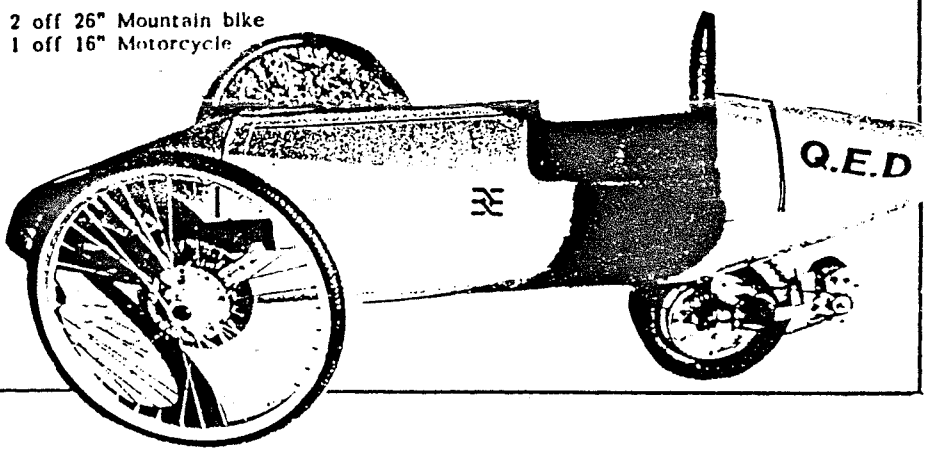
Leather or good quality vinyl gloves must be worn.

Drivers must be fully clothed and enclosed footwear must be worn.

All Drivers must be able to give hand signals or if the vehicle is fully enclosed than a brake light (which must come on when the brakes are applied) and turn indicators must be fitted.

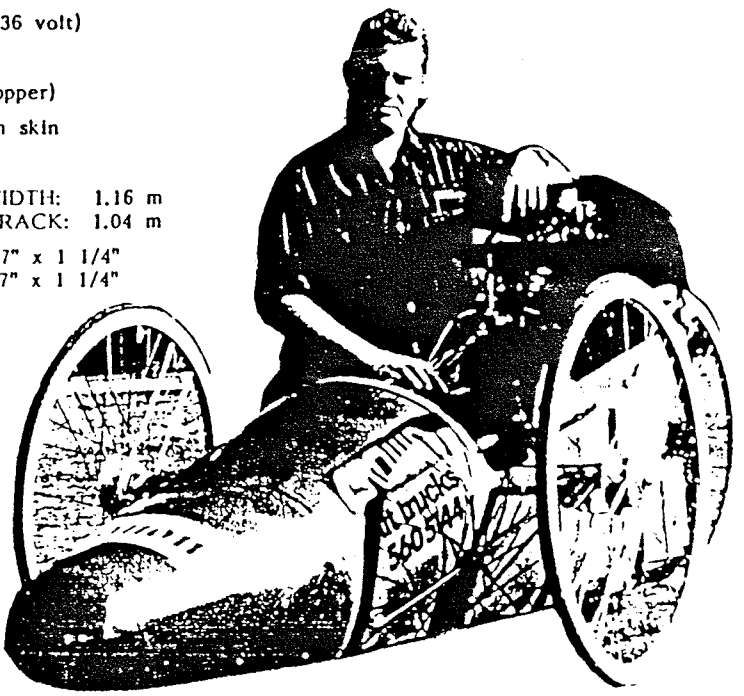
3. KLIPPON TERMINATOR

ENTRANT:	David Head
NO. OF WHEELS:	3
BATTERY DETAILS:	2 off 5 pair and 1 off 10 pair Dunlop Pulsar
MOTOR DETAILS:	Lucas C 40
CONTROL SYSTEM:	Series/Parallel switching and field resistor switching
BODY CONSTRUCTION:	Fibreglass
CHASSIS:	Steel Alloy
DIMENSIONS:	LENGTH 2.25 m: WIDTH: 1.17 m WHEELBASE: 1.1 m TRACK: 1.085 m
TYPE OF WHEELS:	FRONT: 2 off 26" Mountain bike REAR: 1 off 16" Motorcycle
STEERING SYSTEM:	Tiller
BRAKES:	FRONT: Disk brakes REAR: Dynamic
DRIVE SYSTEM:	Chain reduction
INSTRUMENTATION:	Ammeter, Voltmeter
BUILDER(S):	David and Fred Head Karyn Burchell
DRIVER(S):	David Head



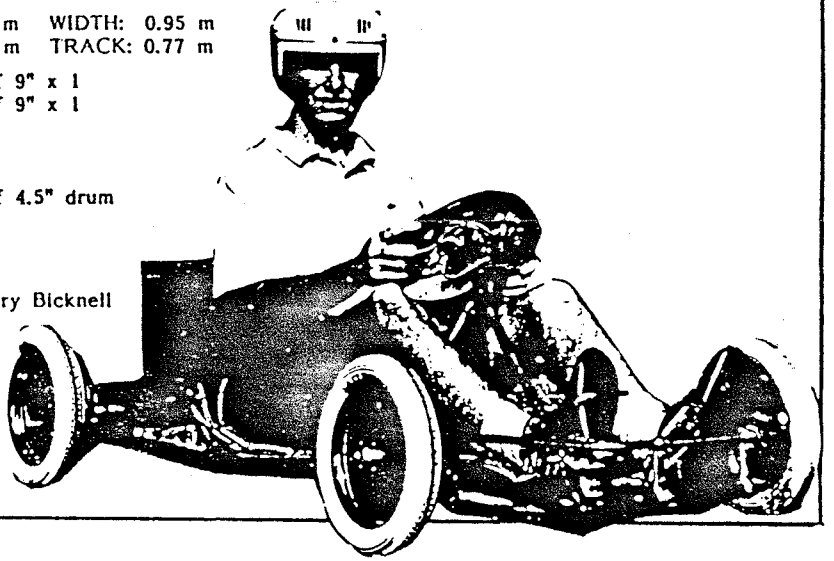
4. ARCS AND SPARKS

ENTRANT:	Crown Controls Pty Ltd
NO. OF WHEELS:	3
BATTERY DETAILS:	Dunlop Pulsar, P 8 x 3 (36 volt)
MOTOR DETAILS:	G.E. 1/2hp, Series wound
CONTROL SYSTEM:	G.E. 50 Truc-Tronic (Chopper)
BODY CONSTRUCTION:	Tubular frame, aluminium skin
CHASSIS:	Tubular steel
DIMENSIONS:	LENGTH: 2.6 m WIDTH: 1.16 m WHEELBASE: 1.09 m TRACK: 1.04 m
TYPE OF WHEELS:	FRONT: Bicycle 27" x 1 1/4" REAR: Bicycle 27" x 1 1/4"
STEERING SYSTEM:	Pitman Arm
BRAKES:	Drum
DRIVE SYSTEM:	Chain
INSTRUMENTATION:	Ammeter, Voltmeter
BUILDER(S):	Steve Allan Dick Jenkins Paul Davis Andrew Esty Lance Playdell
DRIVER(S):	Lance Playdell Andrew Esty

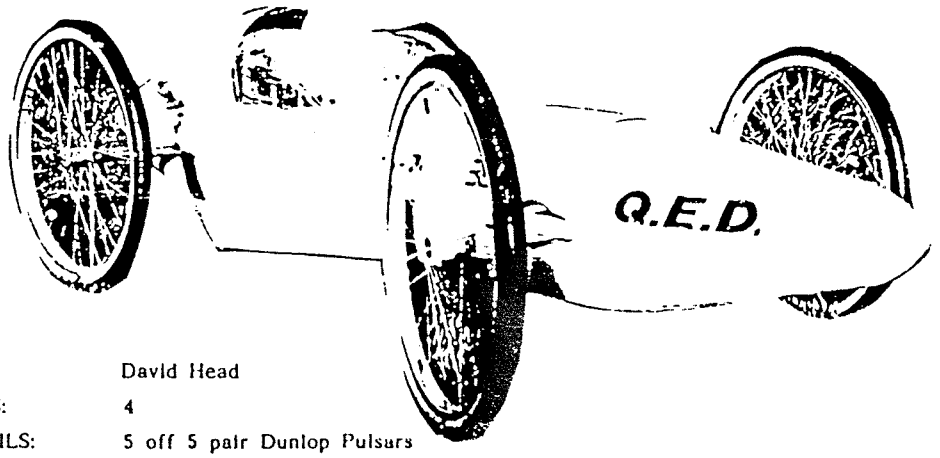


7. SAM 1

ENTRANT:	Stephen Bicknell
NO. OF WHEELS:	4
BATTERY DETAILS:	5 off 5 pair Dunlop Pulsar
MOTOR DETAILS:	Lucas-Grigg 400 watt
CONTROL SYSTEM:	Ranger Electronics Chopper Mk 2 and field reckoning
CHASSIS:	Birel racing Go Kart
DIMENSIONS:	LENGTH: 1.59 m WIDTH: 0.95 m WHEELBASE: 1.04 m TRACK: 0.77 m
TYPE OF WHEELS:	FRONT: 2 off 9" x 1 REAR: 2 off 9" x 1
STEERING SYSTEM:	Ackerman
BRAKES:	FRONT: Nil REAR: 2 off 4.5" drum
DRIVE SYSTEM:	Chain
INSTRUMENTATION:	Nil
BUILDER(S):	Stephen Bicknell, Harry Bicknell
DRIVER(S):	Stephen Bicknell Margaret Godlewski

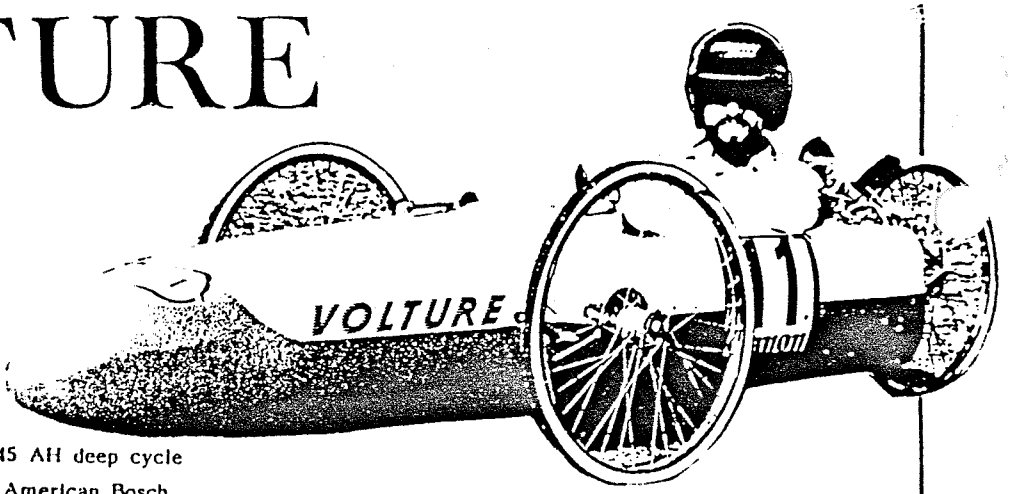


8. KLIPPON KRUISER



ENTRANT:	David Head
NO. OF WHEELS:	4
BATTERY DETAILS:	5 off 5 pair Dunlop Pulsars
MOTOR DETAILS:	2 off 48 volt 350 watt printed circuit motors
CONTROL SYSTEM:	Chopper
BODY CONSTRUCTION:	Fibreglass
CHASSIS:	Steel, alloy
DIMENSIONS:	LENGTH: 2.55 m WIDTH: 1.2 m WHEELBASE: 1.3 m TRACK: 1.115 m
TYPE OF WHEELS:	FRONT: 2 off 26" Mountain bike REAR: 2 off 26" Mountain bike
STEERING SYSTEM:	Tiller/Ackermann
BRAKES:	FRONT: Nil REAR: Inboard hydraulic disks
DRIVE SYSTEM:	Chain reduction
INSTRUMENTATION:	Ammeter, Voltmeter
BUILDER(S):	George Hoath David Head Malcolm Heather Richard Holverton Joe Proffit
DRIVER(S):	Karyn Burchell

11. VOLTURE



ENTRANT:	Gabby Jenes
NO. OF WHEELS:	3
BATTERY DETAILS:	2 off Besco 45 AH deep cycle
MOTOR DETAILS:	24 volt 1 hp American Bosch
CONTROL SYSTEM:	Chopper
BODY CONSTRUCTION:	Fibreglass
CHASSIS:	13 mm square tube
DIMENSIONS:	LENGTH: 2.9 m WIDTH: 1.09 m WHEELBASE: 1.48 m TRACK: 1.01 m
TYPE OF WHEELS:	FRONT: 2 off 24" x 1 3/8" REAR: 1 off 24" x a 3/8"
STEERING SYSTEM:	Ackermann
BRAKES:	FRONT: 2 off Disk brakes REAR: Caliper
DRIVE SYSTEM:	Double reduction chain and 3 speed hub gear
INSTRUMENTATION:	Voltmeter, Ammeter, amp hour meter
BUILDER(S):	Gabby Jenes, Neil Ross
DRIVER(S):	Gabby Jenes

12. ELIZABETH BODNAR

ENTRANT:	John Bodnar John Bodnar's Electric Cycle Racing Team
NO. OF WHEELS:	4
BATTERY DETAILS:	2 OFF 12 VOLT LEAD ACID
MOTOR DETAILS:	1/3 hp OHIO
CONTROL SYSTEM:	Series/Parallel battery switching
BODY CONSTRUCTION:	Fibreglass
CHASSIS:	Steel tube
DIMENSIONS:	LENGTH: 2.0 m WIDTH: 1.0 m
TYPE OF WHEELS:	FRONT: 2 off 20" REAR: 2 off 20"
STEERING SYSTEM:	Ackerman
BRAKES:	FRONT: Disk REAR: Caliper
DRIVE SYSTEM:	Chain
INSTRUMENTATION:	Ammeter
BUILDER(S):	John Bodnar
DRIVER(S):	Elizabeth Bodnar