

Electric
Auto



NEWS



1985

Association

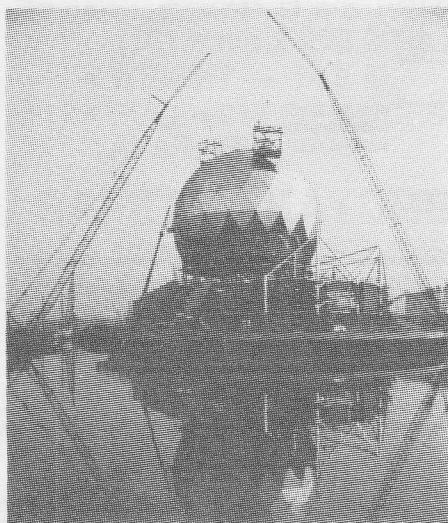
VOL. XVII NO. 5

EXPO 86 VANCOUVER A CONSTRUCTIVE ROLE

FOR 10 YEARS I HAVE DIRECTED ALL MY EFFORTS TO CONVINCE THE WORLD THAT THE STATE OF THE ART (NOW) EV IS A VIABLE MEANS OF TRANSPORTATION. I BELIEVE THE WORLDS FAIR AND THE TRANS-CANADA-RUN WOULD BE THE IDEAL CHANCE TO PROVE ONCE AND FOR ALL THIS FACT.

I BELIEVE THAT EXPO 86 WILL PROVE TO BE THE ONLY REAL WORLD'S FAIR SINCE CHICAGO IN 1933.

WE WILL NEED HELP !!!, A MOBILE HOME SUPPORT VEHICLE TO GO ALONG WITH US, AT YOUR OWN EXPENCE, TWO PEOPLE TO DRIVE MY VAN AND ACT AS SUPPORT TECHNICIANS (WORK), MONEY !! MONEY !!. ANY VOLUNTEERS PLEASE CALL CLARENCE AT (408) 248-2588 DAY OR NIGHT. ALSO WE NEED CANADIAN HAMS TO HELP SET UP COMMUNICATIONS NETWORK ALONG ROUTE, I AM W6ZIO.



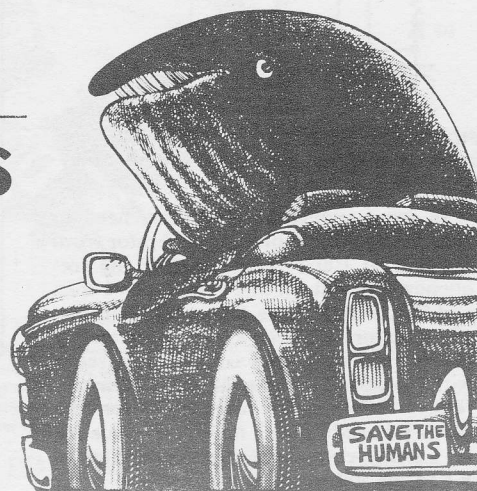
EAA IN COOPERATION WITH EVAC, ELECTRIC VEHICLE ASSOCIATION OF CANADA CAN TAKE A CONSTRUCTIVE ROLE IN MAKING THIS HAPPEN.

IN MAY OF 1985, A PHENOMENAL 17 STOREY GEODESIC PAVILION - THE EXPO CENTRE- WILL OPEN THE GEM-LIKE CENTREPIECE OF A BREATHTAKING ARRAY OF PAVILIONS, THE EXPO CENTRE WILL GIVE THE WORLD A PREVIEW OF BRITISH COLUMBIA'S WORLD EXPOSITION A FULL YEAR BEFORE THE OFFICIAL OPENING ON MAY 2, 1986.

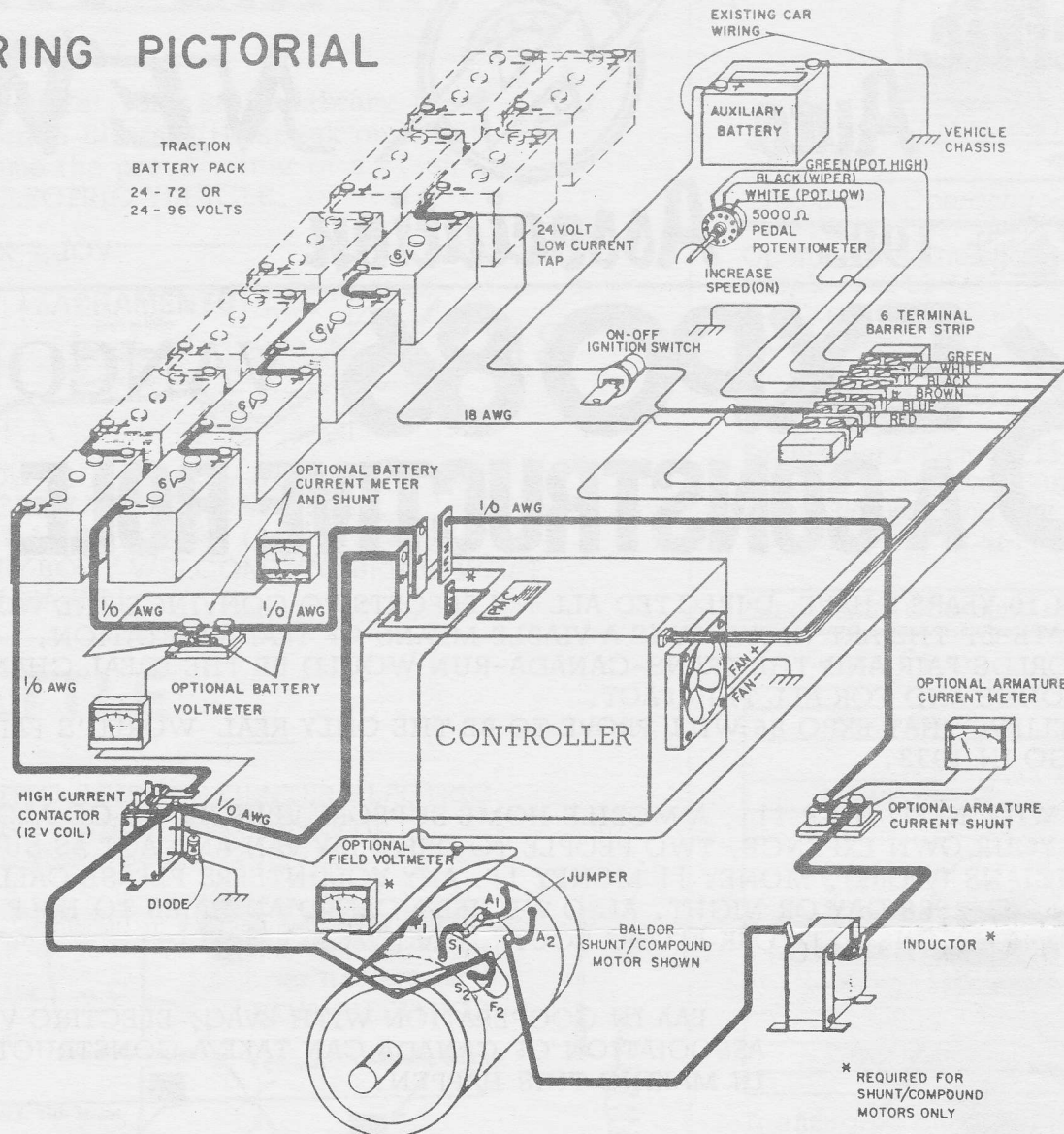
MOST ASK FOR CIRCUITS INSIDE

ACID RAIN, GREENHOUSE EFFECT, ++++
THE HEAT ENGINE HAS GOT TO GO!!!!

THE BOTTOM LINE ➡



WIRING PICTORIAL



COMPLETE STATE OF THE ART EV SYSTEM

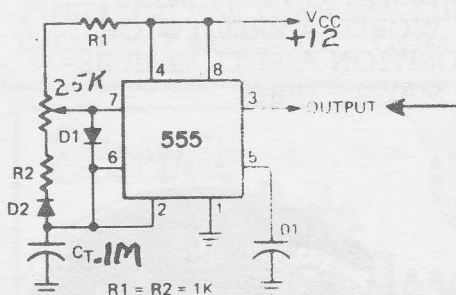
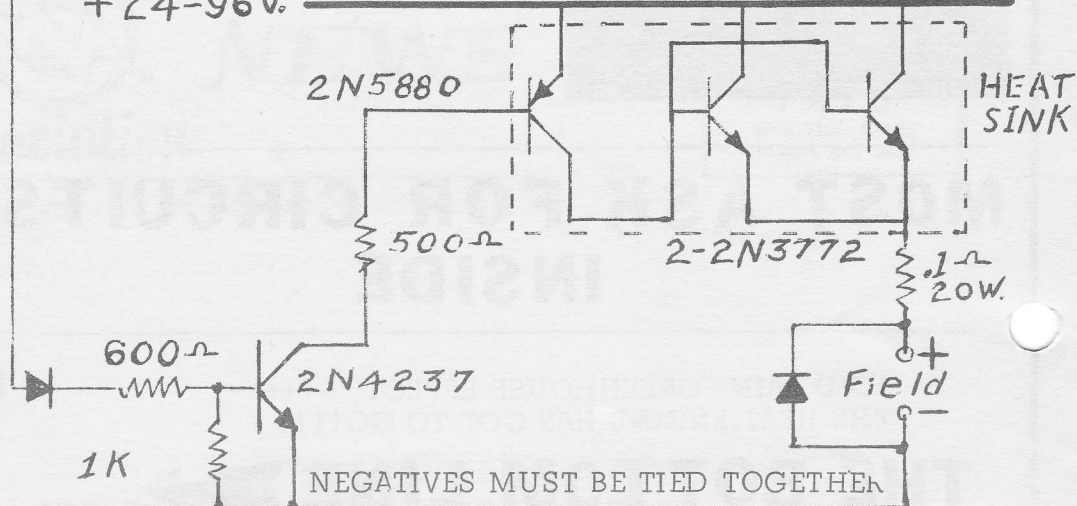


FIG. 17—ASTABLE MULTIVIBRATOR with duty cycle variable from 0 to 100% and frequency constant.

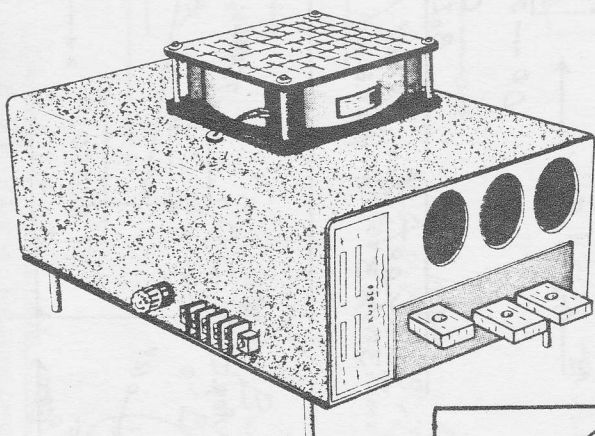
In some applications, we may need to vary the duty cycle of a multivibrator from about 0 to 100% while holding the frequency constant. In this case, replace R_{T-1} and R_{T-2} with a single linear-pot as in Fig. 17. Resistors R_1 and R_2 —approximately 1,000 ohms each—are connected in series with the pot. R_1 limits the maximum current through the discharge transistor. Resistor R_2 establishes a minimum value for R_{T-1} and to compensate for the addition of R_1 to the network.

WORLD DISTANCE RECORD HOLDER BRUCE MCCASKIE'S 20 AMP. FIELD CONTROLLER USED ON COMPOUND (CM77) FULL FIELD SHOULD BE USED ON ALL SHUNT MOTORS

+24-96V.

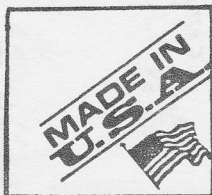


SAFETY ELECTRIC VEHICLE CONTROLLER Model HV-500



SPECIFICATIONS:

- 100-500 AMP
- 24-120 VOLT
- 4000 HZ EFFICIENCY
- FULLY PROTECTED
- REGULATED COOLING FLOW
- SIZE — 4" D x 8" W x 12" L
(101.6mm x 203.2mm x 304.8mm)
- WEIGHT — 14.5 lb.
- FULL LINE OF ACCESSORIES
AVAILABLE



SAFETY FEATURES:

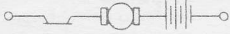
- NON-GROUNDED SYSTEM
- ACCELERATOR INTERLOCK
- SOFT-START ACCELERATION
- HIGH-VOLTAGE DISCHARGED
WHEN OFF
- OSHA YELLOW ENCLOSURE
- HIGH VOLTAGE WARNING LABEL
- AXIAL FAN GUARD

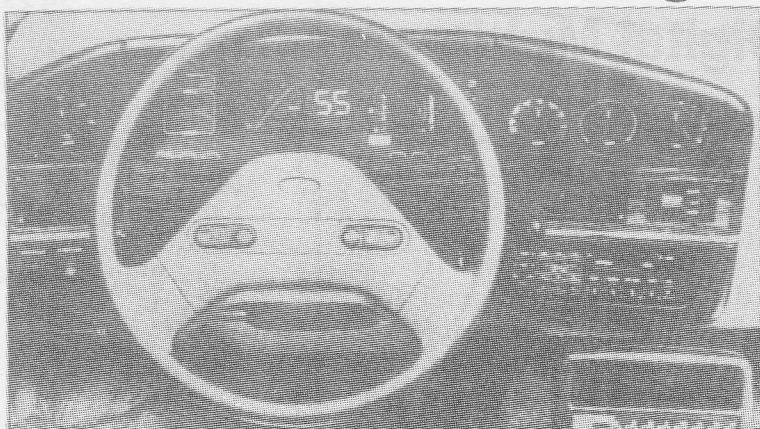
\$550

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WRITE FOR
DETAILS

P.O. Box 3761
Santa Rosa, CA 95402

Telephone:
(707) 542-4151

RUSSCO 
ELECTRO-MECHANICAL ENGINEERING



1985 DASH

ICL7106/ICL7107

7106/7107 EVALUATION KITS

After purchasing a sample of the 7106 or the 7107, the majority of users will want to build a simple voltmeter. The parts can then be evaluated against the data sheet specifications, and tried out in the intended application. However, locating and purchasing even the small number of additional components required, then wiring a breadboard, can often cause delays of days or sometimes weeks. To avoid this problem and facilitate evaluation of these unique circuits, Intersil is offering a kit which contains all the necessary components to build a 3½ digit panel meter. With the help of this kit, an engineer or technician can have the system "up and running" in about half an hour.

Two kits are offered, the ICL7106EV/KIT and the ICL7107EV/KIT. Both contain the appropriate IC, a circuit board, a display (LCD for 7106EV/KIT, LEDs for 7107EV/KIT), passive components, and miscellaneous hardware.



APPLICATION NOTES

- A016 "Selecting A/D Converters," by David Fullagar
- A017 "The Integrating A/D Converter," by Lee Evans
- A018 "Do's and Don't's of Applying A/D Converters," by Peter Bradshaw and Skip Osgood
- A019 "4½ Digit Panel Meter Demonstrator/Instrumentation Boards," by Michael Dufort.
- A023 "Low Cost Digital Panel Meter Designs," by David Fullagar & Michael Dufort.

A COLLEGE EDUCATION FOR \$24.95.

Digital Multimeters

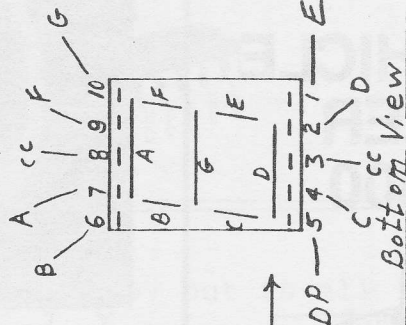
MODERNIZE YOUR CAR

Almost anyone can build this simple meter. On the .2 scale with a 500amp. 50 MV. shunt the last 3 digits will read direct. I now recomend H.P. 5082-7633 Green digits, Green is much brighter in sun. Smoke colored plexiglas makes a good black out dash, very spectacular when lit up.

CLARENCE

Dwg #1

Fairchild
FND 503
7 Seg. LED

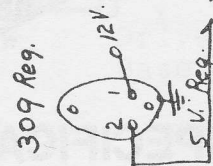
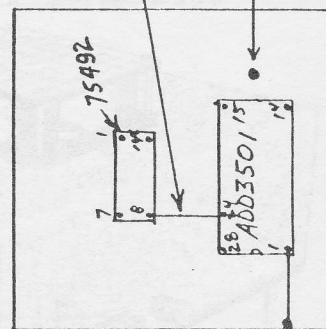


Layout for Panel Meter
3" X 3" Perfboard

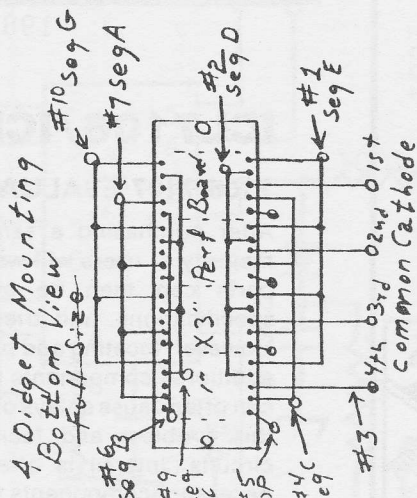
Use Figure 5
Nat'l Note

For ease
of Wiring Align
pin 8-75492 with
pin 24 of 3501

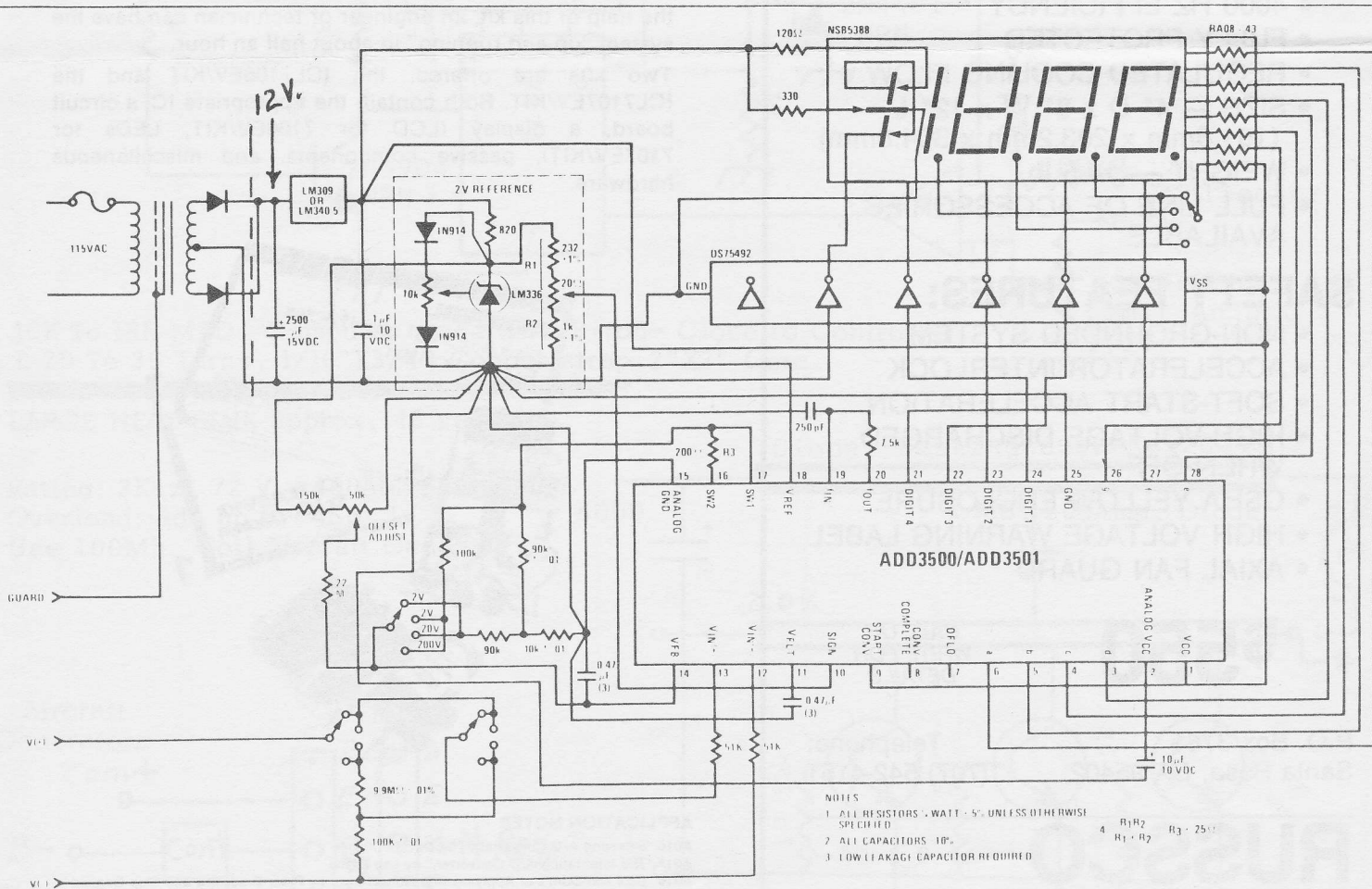
All Grounds
Use Mini Caps
Sprague Q-Line
or = Mini. ts.



Courtesy
National Semiconductor



One of Four



- NOTES
1. ALL RESISTORS, $\frac{1}{4}$ WATT, 5%, UNLESS OTHERWISE SPECIFIED
2. ALL CAPACITORS 10%,
3. LOW LEAKAGE CAPACITOR REQUIRED

$$R_1 = R_2 \quad R_3 = 25k$$

Figure 6. 3 1/2 Digit DVM, Four Decade, $\pm 0.2V$, $\pm 2V$, $\pm 20V$ and $\pm 200V$ Full Scale

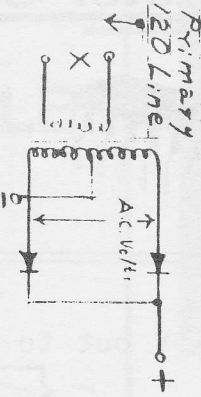
CHARGING

By CLARENCE ELLERS
PLEASE SEE SAFETY IN MAY ISSUE

5

COMMON CHARGER CIRCUITS

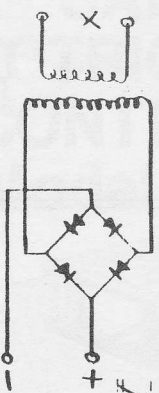
To determine the AC voltage needed, multiply the number of cells by 2.2.
EXAMPLE: 2.2 volts per cell, fully charged.
3 cells per 6 volt battery.
6 batteries = 24 cells
etc.
In other words if you have a 48 volt system (8 batteries) and your charger is 52 to 54 volts you can never over charge. HOWEVER NEVER TRUST ANY BATTERY keep watch when charging or use a timer.



Full Wave
With Center Tap
D.C. Volts $\frac{1}{2}$ A.C. Volts



Half Wave A.C. Volts =
D.C. Volts But $\frac{1}{2}$ Time
Takes Twice Time To Charge



Full Wave Bridge
D.C. Volts = A.C. Volts
4 Diodes or Bridge Assem.



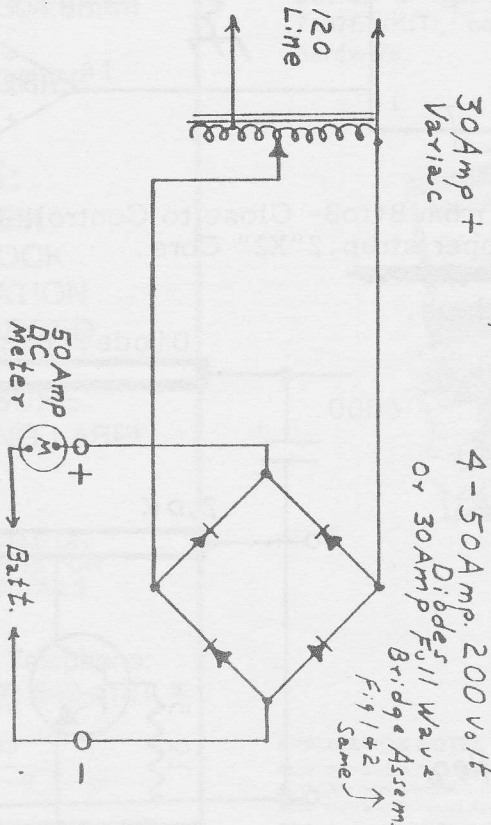
Variable (Variable Transformer)
Use To Vary Charging Current
Connect X to X on Charger Cir.

A BATTERY CHARGER CAN BE ANY DC SUPPLY THAT WILL PRODUCE MORE VOLTAGE THAN THE FULLY CHARGED VOLTAGE OF THE BATTERY. THE CURRENT YOU CAN SAFELY USE IS DETERMINED BY THE AMPERE RATING OF THE COMPONENTS IN YOUR CHARGER, ie transformer, diodes, wire.

Electric car batteries are best charged at about 30 amps. At approx. 80% charge, current should be reduced to about 10 amps. If batteries bubble profusely or show any sign of temperature rise - they are either over charged or being charged at too high a rate.

The only test for charge is a hydrometer which measures the specific gravity of the acid. It is usually labeled 1250 which is 1.25. This is considered charged. A good hydrometer is a must. Those sold at most auto supply stores for \$1.50 to \$2.50 are almost worthless. Check the float, it must be small and rounded so it does not drag on the side of the tube. Go to a battery shop, check their hydrometer, (the one they use). You may have to have them order you one. The cost is \$8.00 to \$10.00.

Fig. 1



30Amp +
Variable
4-50Amp. 200 Volt
Diodes Full Wave
or 30Amp Bridge Assem.
Fig. 1 & 2
Same

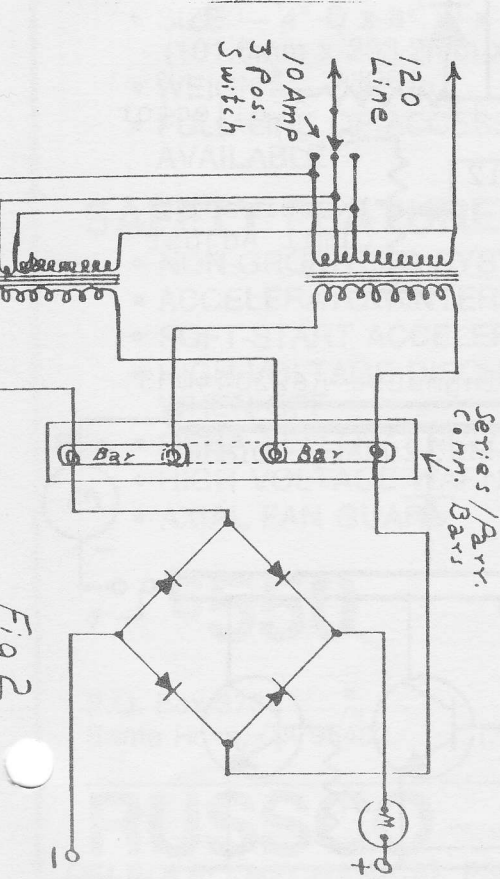


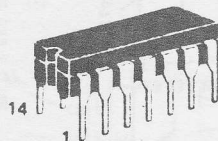
Fig. 2

Solid State Motor Controller

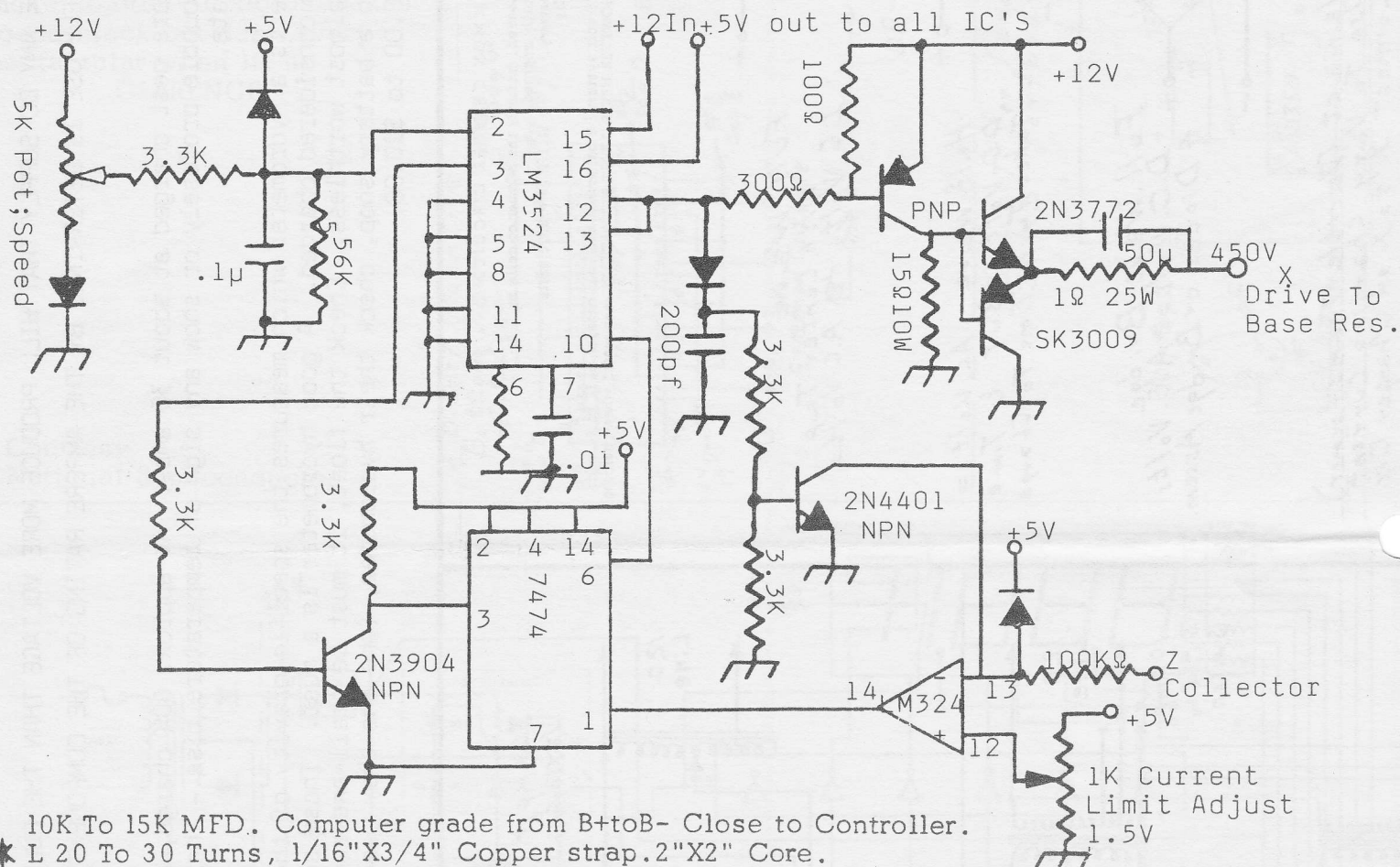


BRUCE McCASKIE

7 SOUTH HUMBOLDT
SAN MATEO, CA 94401



347-1330

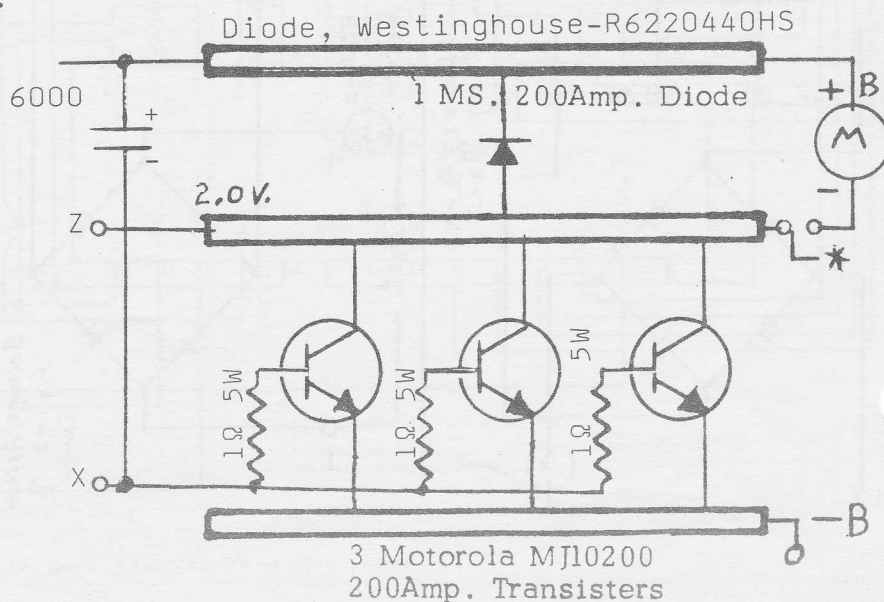


10K To 15K MFD., Computer grade from B+toB- Close to Controller.

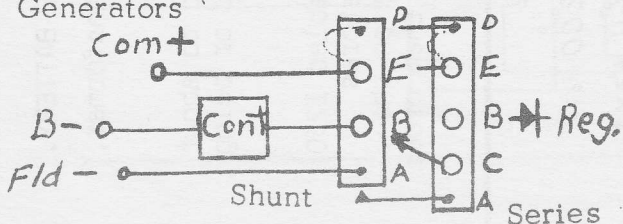
* L 20 To 30 Turns, 1/16"X3/4" Copper strap.2"X2" Core.

LARGE HEAT SINK approx. 48 sq. inch.

Rating: 2Khz, 72 V 400AMPS.
Overload: Adl up to 450 "
Use 100Mh. Coil Aircraft Gens.



Aircraft Generators



EV Marketplace

FOR SALE: 72 Datsun 510 4 door sedan with less than 2000 miles since conversion. Body and seats in new condition, with heavy shocks and 5 new tires.

20HP Prestolite motor, 400 Amp. Willey Controller, 16 Globe 1000 Batteries, 96 Volt system, with on board Lestronic charger and tow bar.

MUST SELL NOW!!! Abe Beckman (415)328-0418 CALL AND MAKE OFFER

FOR SALE: BARGAIN-1980 Datsun pickup and 1981 Datsun 310 Front Wheel Drive Car, converted by LEKTRAKAR in a lott of 200 for DOE and sold for over \$14,000 each. Cars have electric air conditioning and AM/FM radios, asking \$2700, truck for \$2500. Both have chargers, monitors, 22HP motors, & Controllers. 18 6 Volt Batteries (need replaced) and less than 2000 miles. Excellent riding vehicles, will reach 70 MPH. CALL Jack McCowan, (702)388-1690.

FOR SALE: 1964 VW Bug, 48V, Controller, Baldor motor, range 40 miles. On board charger, GOOD regeneration. \$500 CALL Chuck (415)431-8179.

FOR SALE: VW-1966 with Invader body, built in 1983. Only one known to exist. CM76 Motor, 16 Batteries. Kaylor 24-48 volt switching withfield control. Asking material cost + 10%-\$7700. CALL Richard Himley Days (415)595-1414 ex2290, otherwise (415)593-3504.

FOR SALE: 1971 Renault 10 Electric Conversion. 60V Battery Pack/14V Aux. 2CM77 Compound wound Motor, Resister Control and 4-Speed Trans. Licensed and Running with charger and spare transaxle, needs new Batteries. \$1300/Best Offer.

Jack & Heintz G32 500 Amp. Generator(Shunt) Mounted to Opel/Vega 4-Speed Trans, Complete with clutch disc, Pressure Plate, and Flywheel. \$300/Best Offer. CALL Eric Henningson (818)446-9236 or write PO Box 1056, Arcadia, CA 91006.

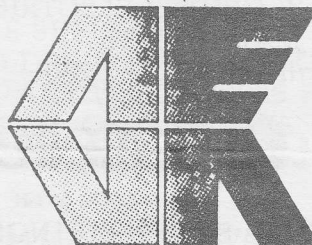
STEP-BY-STEP CONVERSION MANUAL By Clarence Ellers. Complete instructions on conversion of gas cars to electric. Simple method saves hundreds of dollars. Also information on parts and where to get them. Send for summary to Clarence Ellers, P. O. Box 2781, Santa Clara, Ca 95055

FOR SALE: 1966 VW Beetle, restored, excellent condition. Willey 8 Controller, Prestolite series motor. Lester automatic charger 84/12V. 14 ALCO Batteries. Complete or parts, BEST offer. Bob Smelter, 5294 Fairfield North, Dunwoody, CA 30338. (404)395-1665.

CLOSEOUT SALE

Baldor 36V Motor-5 HP	\$495.00
Baldor 48V Motor-5 HP	\$495.00
200 Amp Contactors-SPST	\$ 9.95
400 Amp Contactors-SPST	\$ 14.95
75 MA Meters	\$ 6.95

HUNTLEY ELECTRIC
(415) 431-6288



Australian Electric Vehicle
National Secretariat,
4th Floor, 126 Russell Street,
Melbourne, Vic. 3000.
Telephone (03) 63 7263

1985 "ELECTRATHON"
MAY 19th.



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P.O. Box 2781 - Santa Clara, California 95051

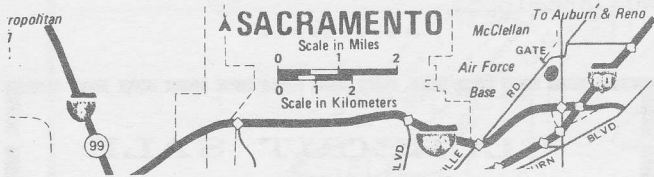
SEPT 21 22

ADS must be received with payment by the 10th. of month, for the following month's issue. AD rate is min. 1 to 5 lines \$5.00, 1/4Pg. \$15.00, Full Pg. \$50.00, full Pg. 2 sides \$80.00. Wanted, Trade, For Sale, ect. Mail to EAA 1249 Lane St. Belmont, CA 94002

WHATS HAP'N

Peninsula

MAY 4, Sat. San Bruno Library 10-12
Clarence Ellers Will speak on how to
become the proud owner of a clean
air ELECTRIC VEHICLE.

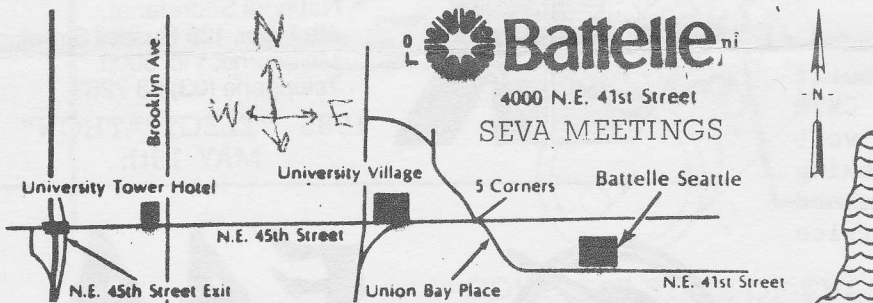


18

SHOW AND TELL EV SHOW MAY 18th.
McCLELLAN AIR FORCE BASE.
CALL MIKE FOSTAR (916)635-3095
EVERYBODY WELCOME TO BRING WHAT
YOU HAVE!!

SEATTLE

PACIFIC SCIENCE CENTER ELECTRIC
VEHICLE SHOW MAY 18-19Th.
CALL Steve Lough (206)325-2600

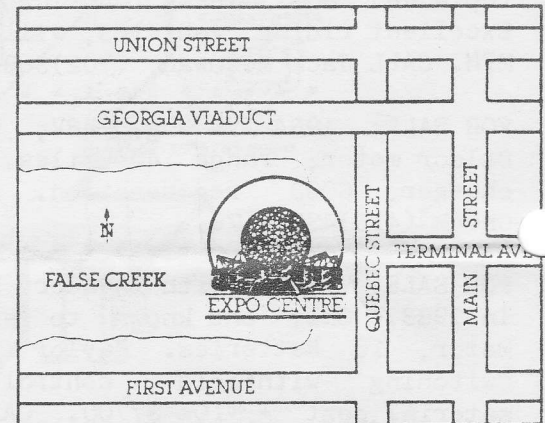


Expo Centre Operating Schedule

Opening Day Thursday, May 2, 1985
May 3 - June 23
Open Fridays, Saturdays, Sundays
Open Victoria Day
Monday, May 20
June 28 - September 2
Open daily
September 7 - October 13
Open Saturdays & Sundays
Open Thanksgiving Day
Monday, October 14, 1985

Expo Centre Operating Hours

10 a.m. - 9 p.m.



The first great attraction of EXPO 86 is now
ready to welcome and amaze you!

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EVENTS. ARTICLES _ COMMENTS etc. all correspondence to address below.

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NEWS

MAY 1985

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