

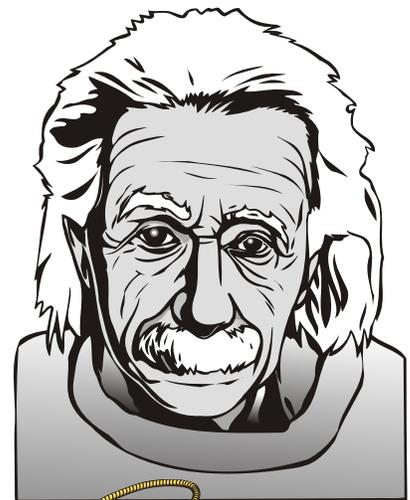
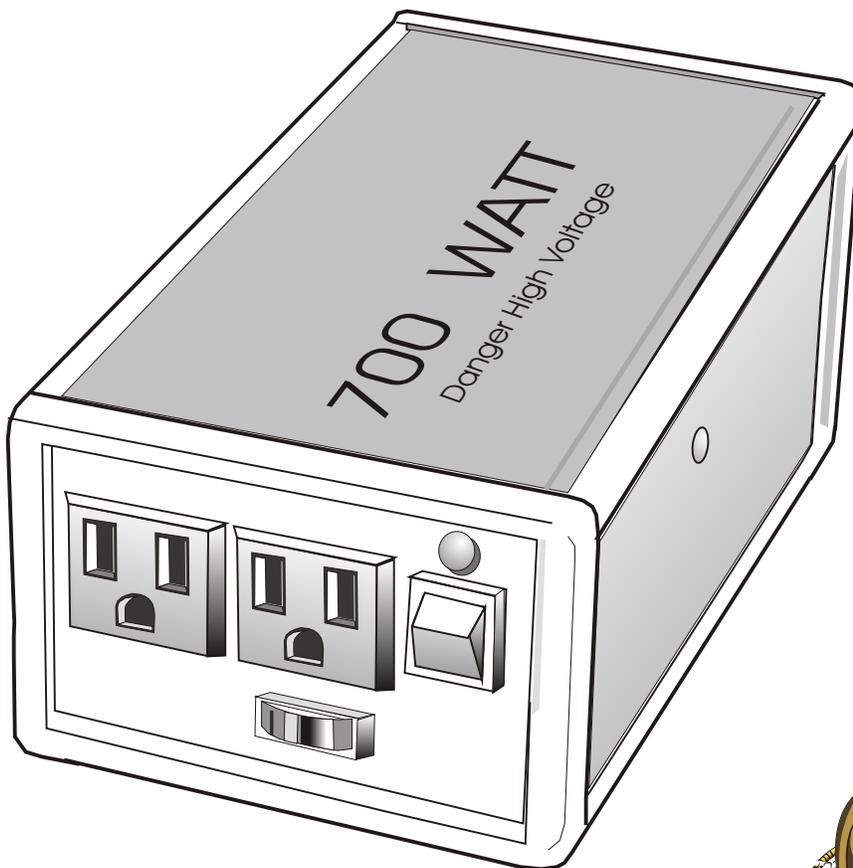
# 5000 WATT INVERTER Plans



Input from 12 vdc batteries  
Output 120 volts AC 60 HZ

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Build any size inverter you want, from 100 watts to 5,000 watts



Time is running out

**FOR RESEARCH PURPOSES ONLY- BUILD AT YOUR OWN RISK!**

## **WARNING!**

In these plans you will see many different ways in which you can build your own Inverter, If you decide to build the DC to AC commutator convertor instead of the step up inverter, you will be using 10 - 12 volt dc car batteries or marine deep cycle batteries in series which will raise the voltage up to 120 vdc which you must then convert to AC using our simple method of invention. One 12 vdc battery will not hurt you unless your hands or body is wet and you touch the terminals. But if these batteries are connected in series this will raise the voltage and the amperage will be very high as well, about 60 to 80 amps, it does not matter if you are wet or dry if you touch the terminals you can get killed! Some states may have laws against doing this.

## WARNING!

We are not responsible for anything in these plans! YOU BUILD AT YOUR OWN RISK! FOR RESEARCH PURPOSES ONLY

HIGH VOLTAGE CAN KILL! USE RUBBER GLOVES WHEN WORKING WITH ANY HIGH VOLTAGE AND AC BATTERIES.

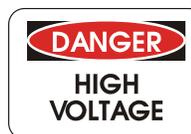
Just because it is your project don't assume anything, be safe! it only takes one mistake and your DEAD!

I'll say it again!

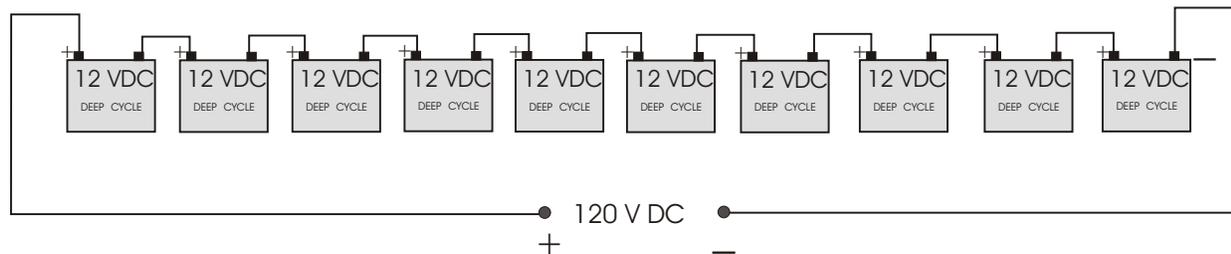
**ONE MISTAKE AND YOUR DEAD! USE RUBBER GLOVES!**

### USE HIGH VOLTAGE WARNING SIGNS!

Place these signs at every entrance of your project area!



KEEP OUT OF THE REACH OF CHILDREN AND ADULTS.  
COVER ALL BATTERY TERMINALS WITH RUBBER OR ANY OTHER NON CONDUCTIVE MATERIAL. MISTAKES CAN HAPPEN.  
PLEASE BE CAREFUL!



*Please note that 120 volts dc can not be used for house current until it is changed to AC. but you can run any ac light bulb(s) with it, and some 1500 watt space heaters.*

# 5000 WATT

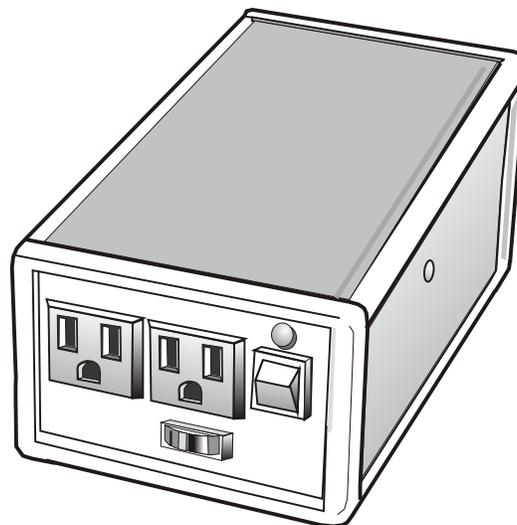
# INVERTER Plans

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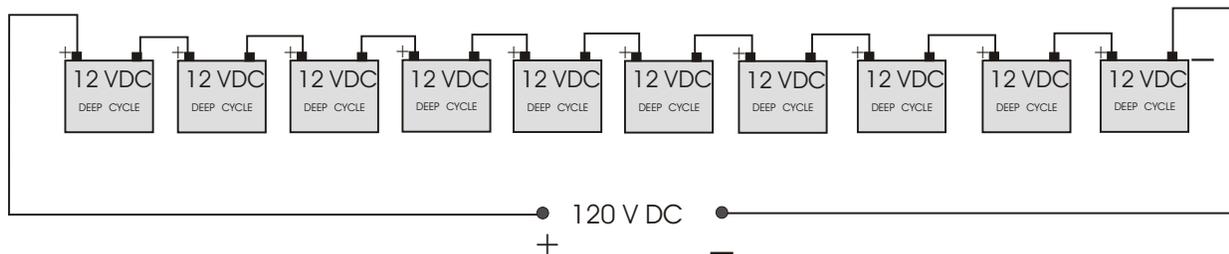
What is an inverter?

An inverter steps up a DC incoming voltage from a 12 volt DC battery and converts it to 115 VAC which can be modified using special techniques to convert it to house hold sine wave current.

The Hertz output is adjustable, you can easily adjust it to a common household 60 Hz. Or for science experiments you can raise the hertz to any desired amount by simply speeding up the small dc motor which you will be using along with our commutator switches that we invented. Most inverters sold today have an output of 115 volts ac and the cheap inverters are not sine wave at all. Our invention uses much less amperage from the battery than other commercial models. That means your 12 volt battery or battery bank will last longer. Never let your battery bank go under a 25 discharge, they will last much longer and save you money!



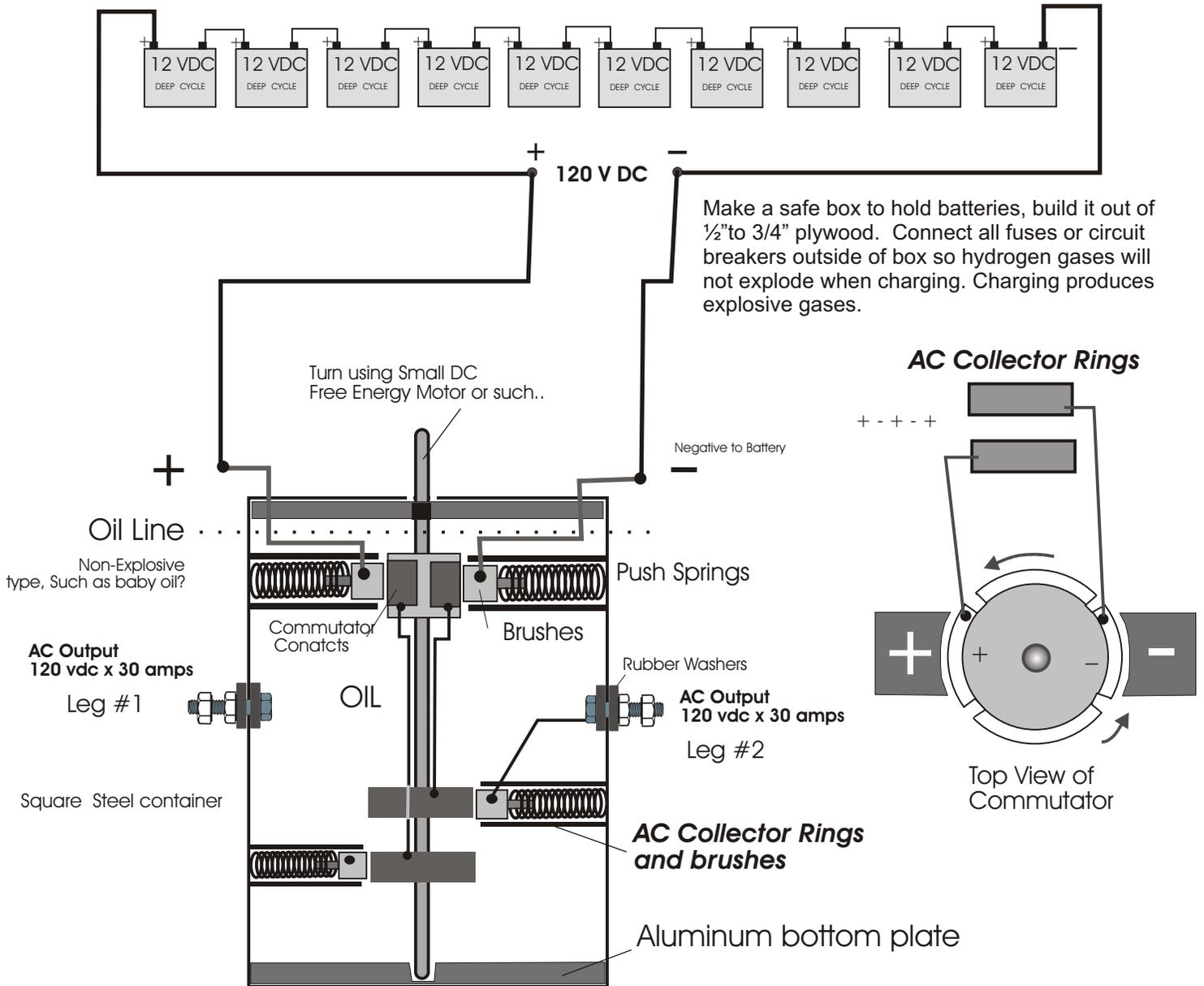
Building a large watt inverter is not extremely simple but if you take your time and do it right you can save thousands of dollars and you will be learning also. Of course for us it is easy, but once you get the hang of it you can build more for your own use only! If you wish to manufacture them you must first get our approval! There is another option to building a 5,000 watt inverter, you can simply connect ten 12 volt deep cycle marine batteries in series as shown below. This can be very dangerous so extreme caution must be taken! This method eliminates the need to step up the 12 vdc to 120 vdc and you get much more wattage, 10,000 to 15,000 watts. The 120 vdc is then converted to AC by using our simple commutator invention, which should be included with these plans. Remember to use the proper wire rating for DC and AC. The wire for the batteries must be very large gauge to handle the wattage, it is multi strand wire and together make up about a Vi diameter or more. Make sure your wire is as short as possible when connecting batteries together. I have never tried it but it seems it would be a very good idea to use a 10 to 20 amp circuit breaker between your #5 and #6 batteries, this is for safety just in case you get a short some where. You should be able to find large gauge DC battery wire at a automotive parts store or Solar Supply house or a local multi store that sells batteries. If you try to use to small of wire it will limit your wattage output. **WARNING!** Make sure all connections are very tight and then paint them with rubber brush-on electrical tape by North American Oil Co. Atlanta GA. (Hardware stores.) Keep out of reach from anyone!



**Please Note that 120 volts dc can not be used for house current until it is changed to AC current!  
But you can run as many AC lights bulbs as you want and dc appliances.**

## Converting DC to AC

Optional set up, But, It is much safer to step up a 12 volt or 24 volt battery than to use 10 batteries.



Brushes should be heavy duty, if not, add more wire yourself to the brushes so they will carry more amperage. More amperage means more wattage output, all wires should be heavy gauge to match what desired wattage output you want. Container can be any size you want. Brushes and contacts should be first tested for as long period of time then oil added. Use a non flammable oil such as baby oil or vegetable oil. If you want 220 volts to run motors and 220 appliances add another 10 batteries separate banks and converters, that means you will need two converters and an experience electrical man to help you if you do not know how to hook up.

## Oil Commutator Switch for Alternating DC to AC

Turn an old 12 vdc 5 amp or 40 amp industrial motor into an Oil Filled Commutator DC to AC switching apparatus.

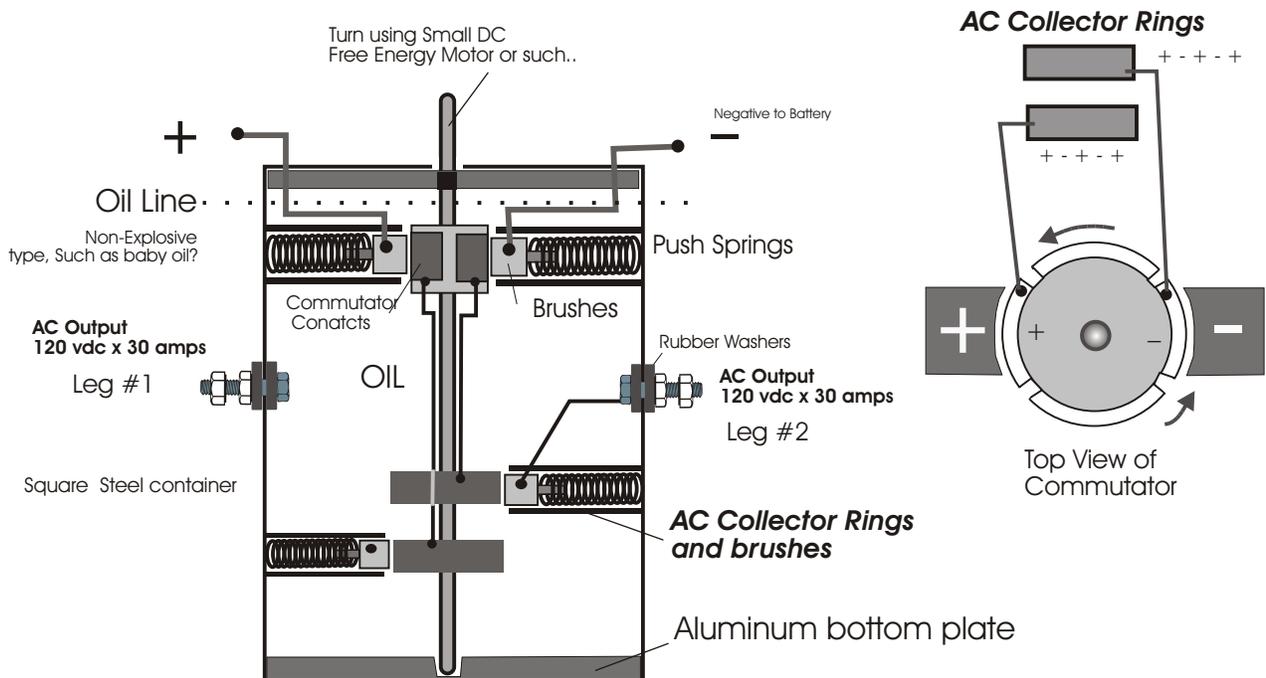
The brushes and contacts will be emerged in baby oil or vegetable oil to reduce or eliminate sparks and heat loss. The motor must be taken apart and the rotor wires that make up the electromagnetic motor can be taken out, you must then add additional ring contacts. Or simply use the container and build our copper pipe commutators as seen in these plans.

As the Commutator turns the incoming 120 volt DC is switched back and forth to the AC Pickup rings, a second set up AC brushes collects the AC.

Incoming amperage from the batteries must be controlled by using fuses and chokes and the proper wire size. if you want 30 amp output use a wire that will handle 30 amps. Now seal all holes and assemble and fill the motor stator container with oil. (It maybe a good idea to use a non-flammable oil such as baby oil or vegetable oil.) or you can simply drill small holes in the bottom of the motor and place the entire motor in a solid can filled with oil. the oil will then fill the motor container and surround the brushes and contacts



Or you can simply construct your own container housing as so: Container can be clear plexi glass plastic so you can see what's going on inside, and the top and bottom plates are steel or aluminum laser cut to your own special size. you can still use a shaft and commutator contacts from an old DC motor. Be careful 120 vdc has more amperage power than your house that is why it must be stepped down to safe levels. (The Amperage ) Use house Circuit Breaker Boxes. And Again **Always Use Rubber Gloves. Be safe!**

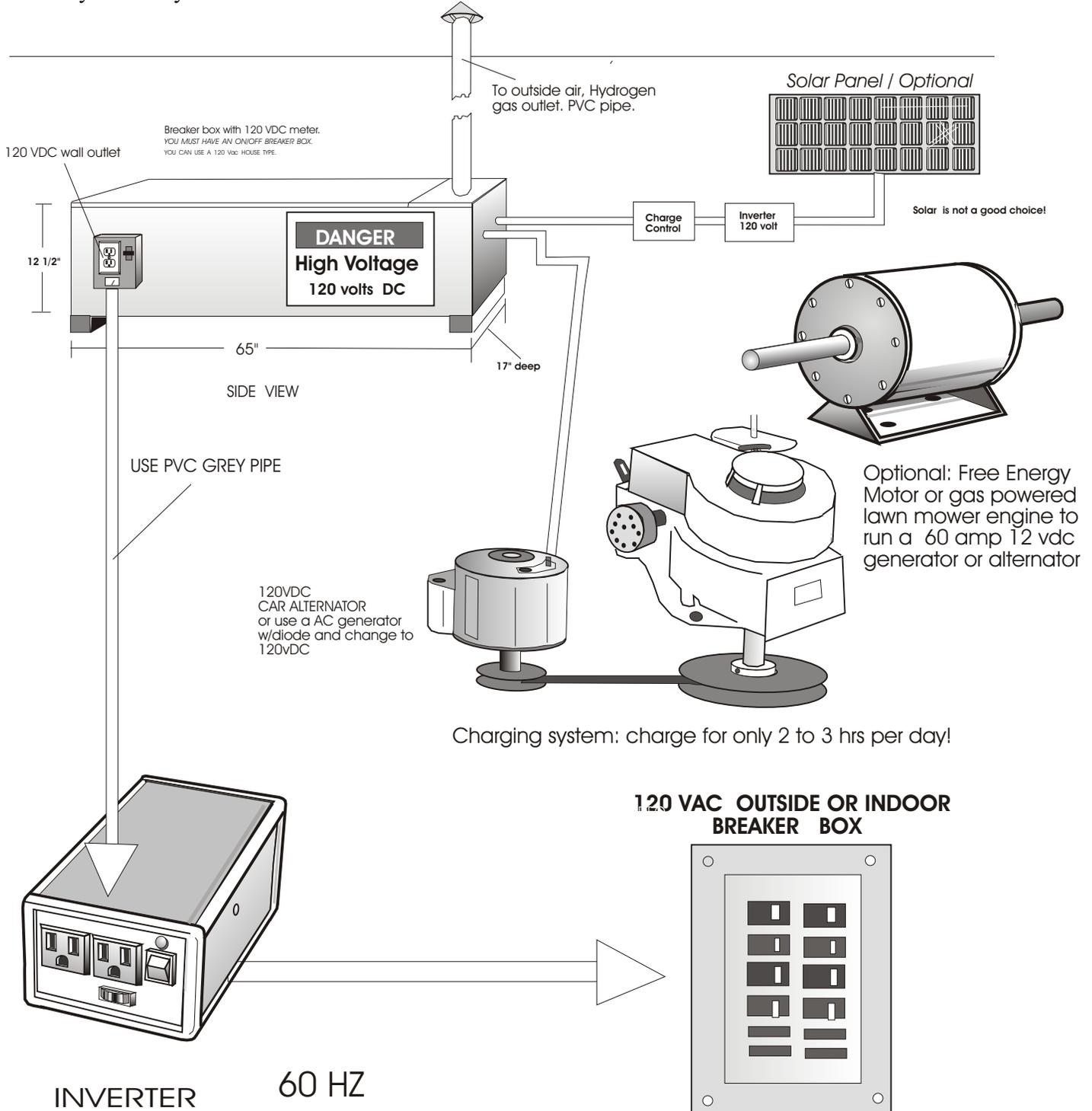


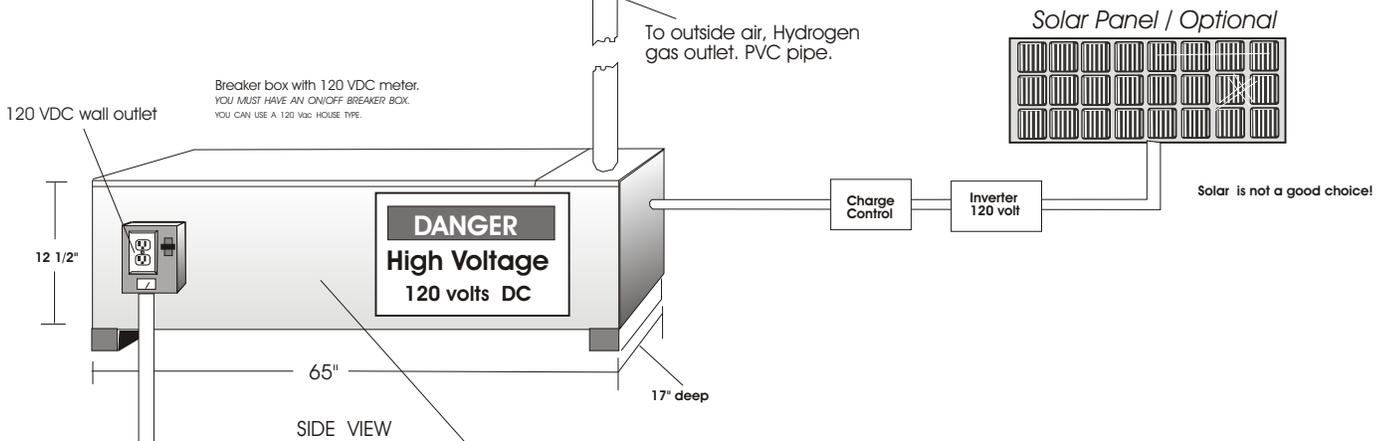
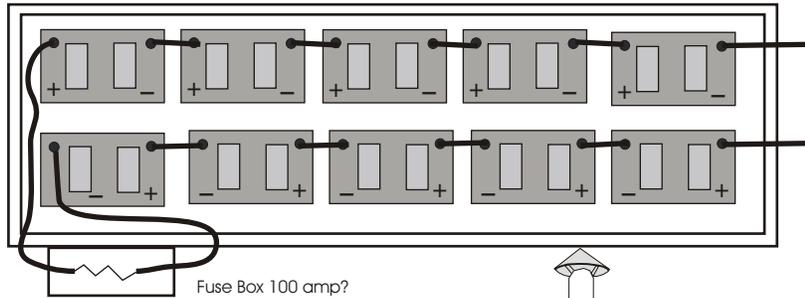
# 5000 WATT INVERTER Plans

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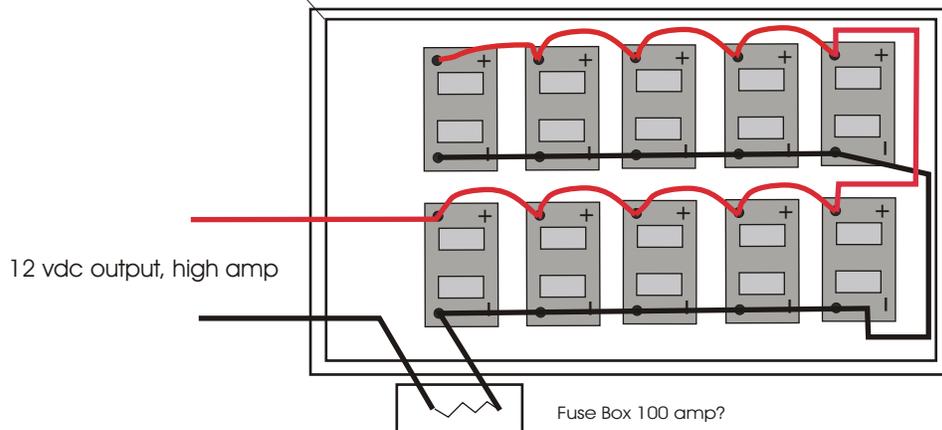
## 120 VDC Battery Bank

No matter what size inverter you use you will still need 10 12 VDC batteries connected in series to run the 500 watt, 1000 watt, 5,000 watt or 7,000 watt homemade inverter. You can also get 120 VDC, by using only 5 12 VDC batteries which will give you 60 VDC. You then double the voltage with a bridge doubler. Also search the net for Solar Panel companies they can tell you more about how to connect batteries and boxes etc...

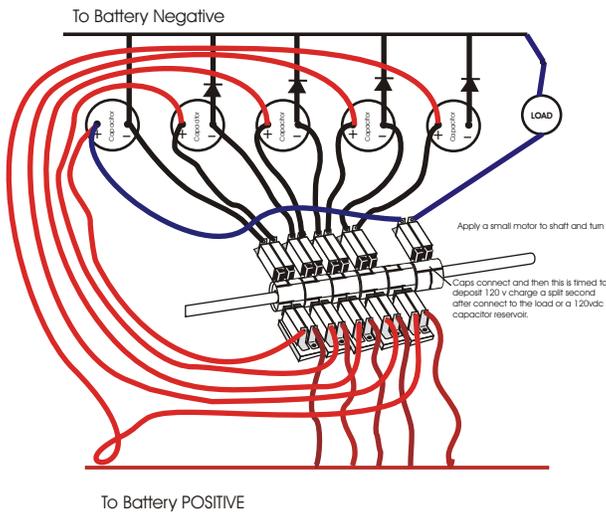




USE PVC GREY PIPE



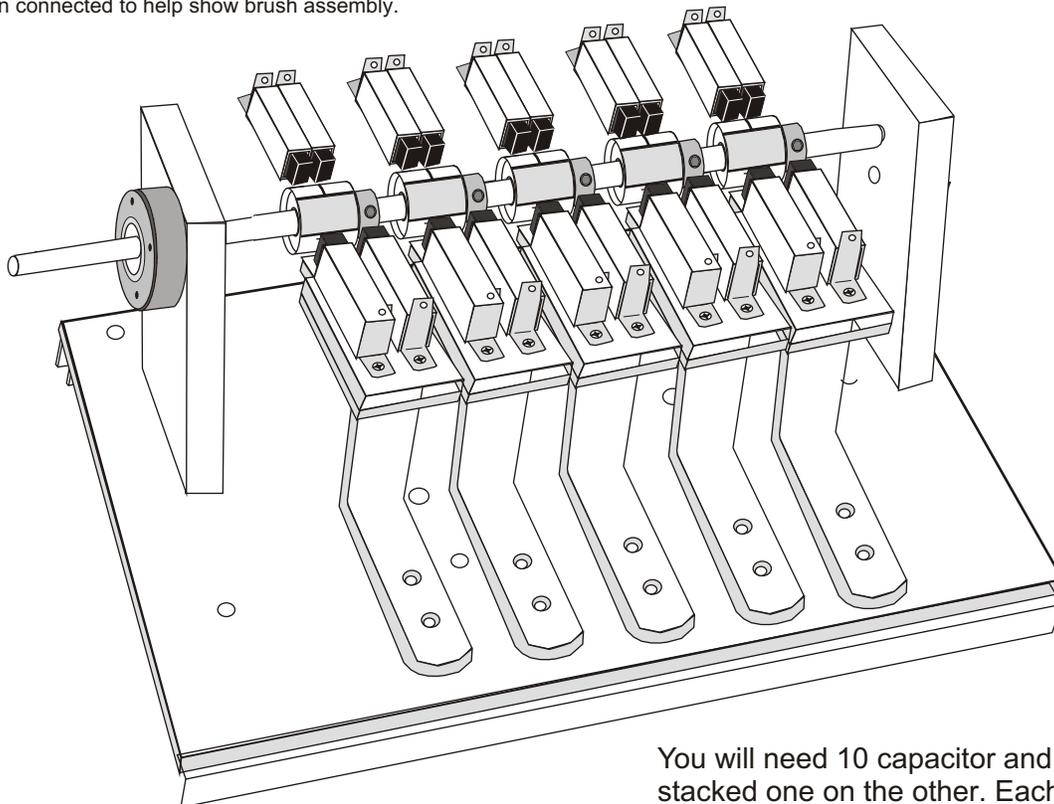
## INVERTER OPTION #2



This is our 5,000 watt inverter design, this is a foundation to work from, of course you can build it to any wattage you desire. For high wattage such as 5,000 watts, you must use fat wire and brushes, ( Large gauge wire ) this design can also be made non-mechanical by using electronic switching, but we wanted to make it easy for just about anyone to build. The commutators are very easy to build, it may look hard but it is not. We use our own design using copper piping and J-B weld epoxy, both are available at any hardware store near you I am sure.

The commutators are simply an on and off switch. when the commutators hit the front brushes, the capacitors are charged with 12 volts dc each, Then as the commutators spin toward the back they shut off the front 12 vdc charge for the caps and they then spin around and hit the back brushes, which connect the capacitors in series and step the Voltage Up to 120 vdc. The drawings do not show the full ten brushes needed, we did not want to make it look too complicated. \_^/ —

Wires are not shown connected to help show brush assembly.

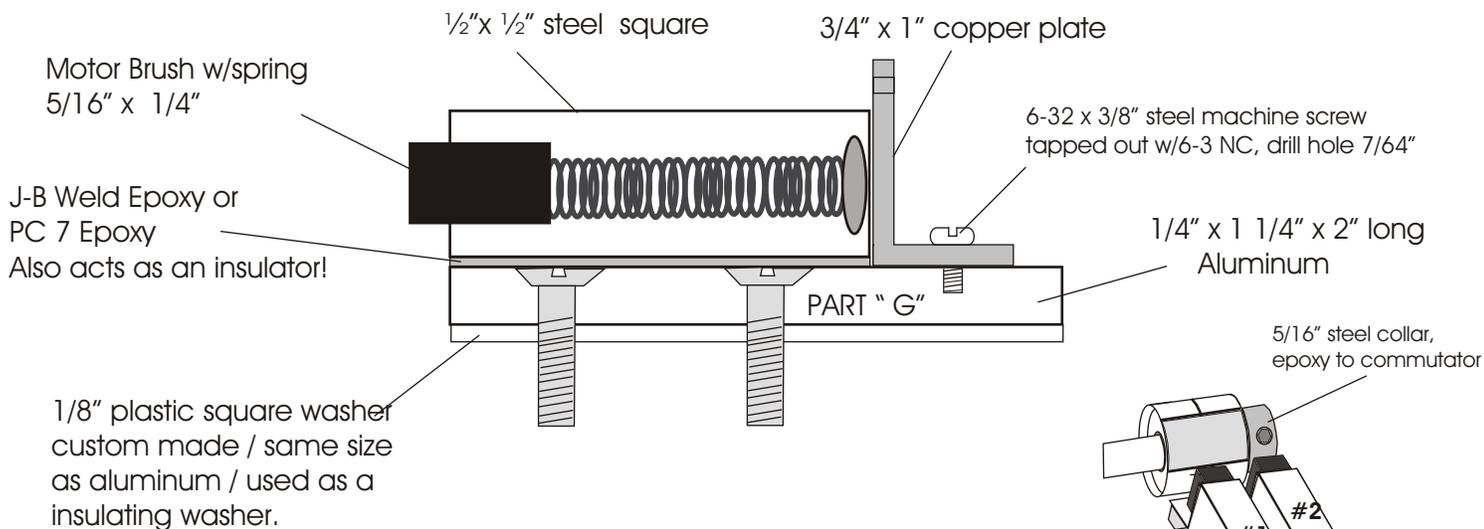


You will need 10 capacitor and diode banks stacked one on the other. Each capacitor is rated at 25 volts x 23,500 uf a 25 v x 4700 uf = about 100 watts output.

Sorry the drawing does not show the full ten brushes to obtain 120 vdc step up

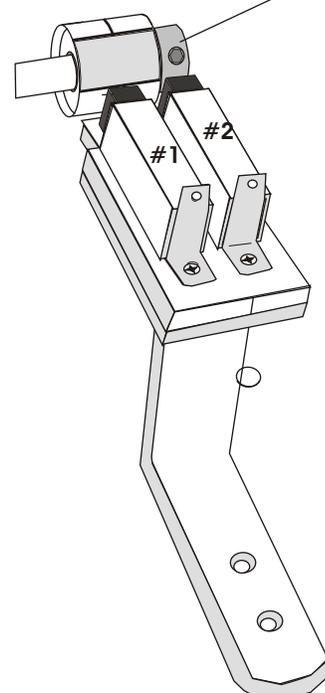
Type 2 inverter / Brush and commutator assembly

SIDE VIEW

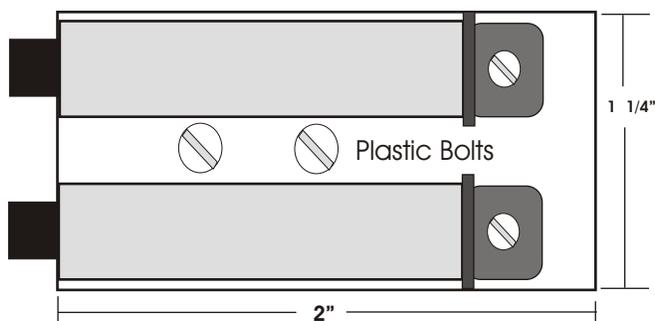


The #1 and #2 brushes must not be electrically connected, The epoxy under each steel brush holder will insulate between the steel square pieces and the aluminum. Make sure to spread the surface with an even coat of epoxy. Epoxy glue each steel brush holder assembly to the aluminum brush holder base, part "G". Then spray paint.

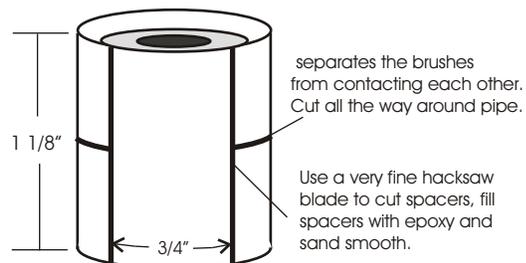
The Brush assembly acts as an on and off switch and must be timed so that the motor runs smoothly and not against it's self. The commutator is special made, and as the commutator rotates the brushes hit the commutator contact bar making a complete Circuit.

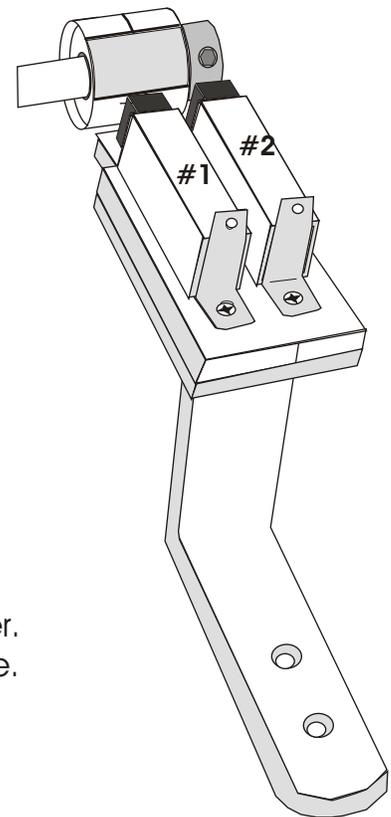
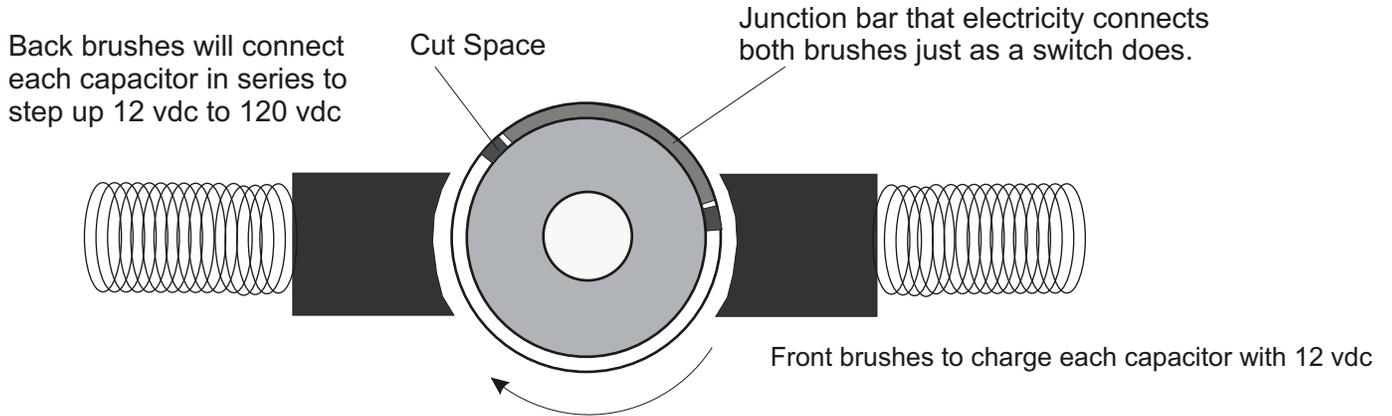


Top View



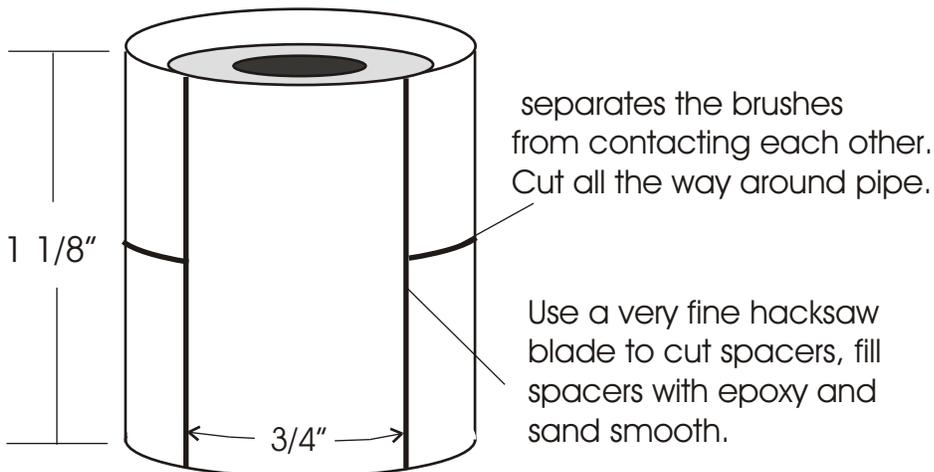
Copper Pipe Commutator



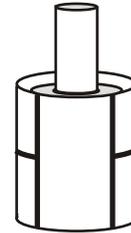


## Copper Pipe Commutator

J-B Weld or PC 7 Epoxy fill



## BUILDING THE COMMUTATOR



### OPTION ONE

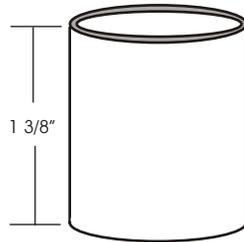
This is a homemade Commutator designed by Rick Harrison, This DC Commutator is used to turn off the incoming DC voltage to the HV Voltage or Low Voltage Magnetic Coil. We are going to create a junction bar that rotates and as it rotates it will slide onto the 2 carbon DC motor brushes and cause a complete connection causing DC current to flow into the Electromagnetic coil.

We are going to give you 2 options in making a DC motor commutator. Pick which one is easiest for you.

#### STEP ONE

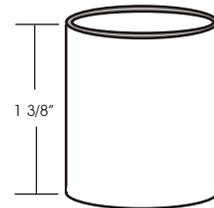
Cut a piece of 3/4" Diameter" x 1 3/8" length copper pipe that you can buy at any hardware store.

Use a pipe cutter to cut a piece 1 3/8" long.



#### STEP TWO

Next using rough sand paper, sand the inside of the copper pipe really good. And then clean with laquer thinner. Surface must be free from dirt.



#### STEP THREE

Using a Q-Tip, Grease a piece of card board a little larger than the copper pipe diameter, this is so the epoxy will not stick to the Card board surface and can be removed when dry. You now need to fill the copper pipe with Epoxy, so slowly squeeze out enough J-B Epoxy to fill the inside of the copper pipe, follow all directions on the J-B Instructions, Mix the 2 parts very well and start placing the epoxy inside of the copper pipe. Let dry 24 hrs, I prefer to wait 40 hrs, but the instruction do not tell you that. We use J-B Epoxy because it is the best on the market and can stand up to 600 degrees.

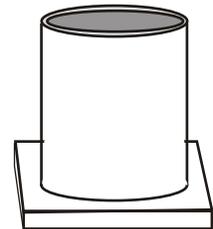


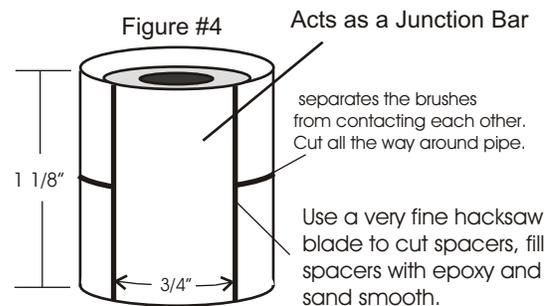
Figure #3

#### STEP FOUR

Now you must find the exact center of the pipe and score it with a sharp punch. You will be scoring or punching a small hole into the top of the epoxy. Now you are going to need a drill press. Place the copper pipe up as you see in figure #3, Make sure bottom surface is very flat, if it is not the hole will be crooked and the commutator will ride with the shaft crooked and cause a off balance at high speeds. start off with the smallest drill bit you have and work your way up until you have a hole the same size as your shaft rods outer diameter.

#### STEP FIVE

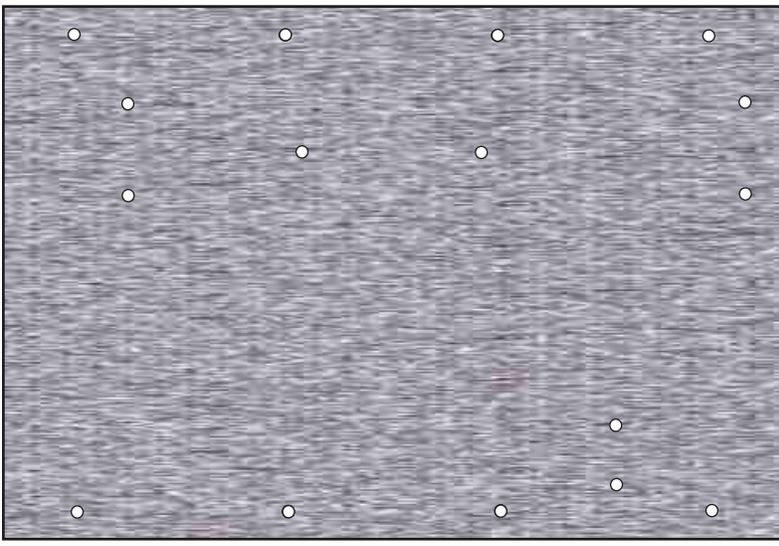
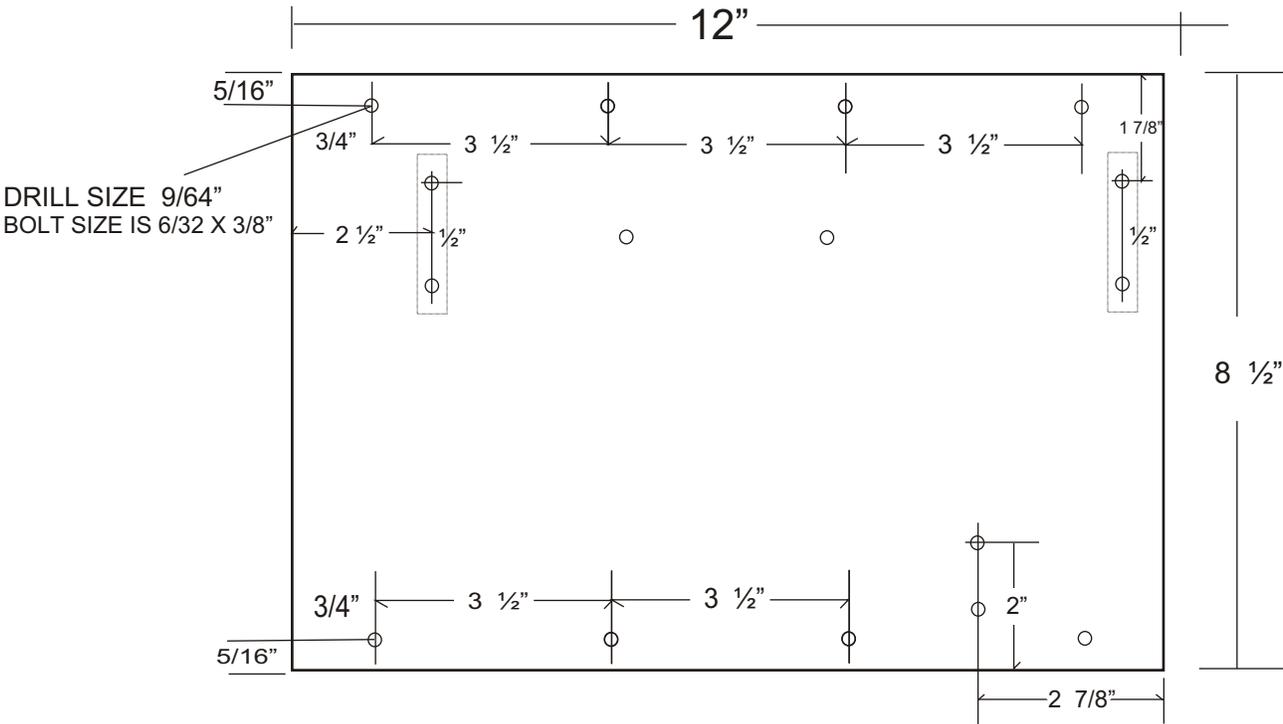
Now using a fine point marker, mark your cut marks on the outside of the copper pipe piece. As shown in figure #4. Use a fine tooth hacksaw to cut. Cut a long center cut all the way around the copper pipe leaving a 3/4" space. Cut all the way through the copper and just up to the hardened epoxy fill. Do not to deep into the epoxy fill.



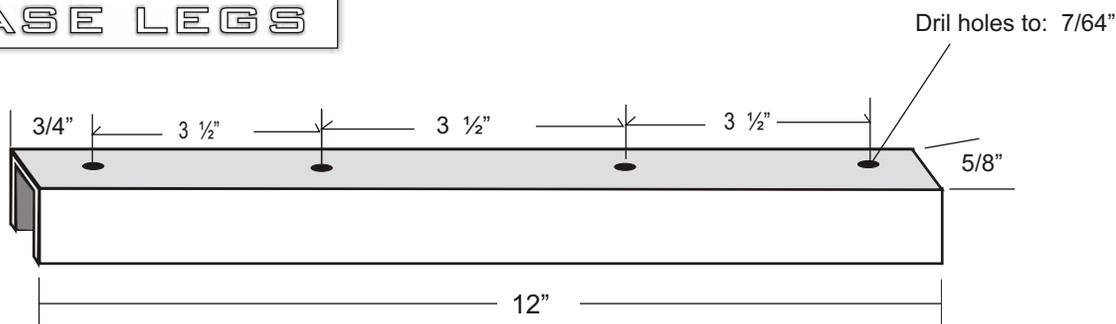
Fill in the cuts with epoxy, let dry 24 hrs then sand down until smooth. Now take a 5/16" steel shaft and place it back into the epoxy hole, now place a steel 5/16" shaft collar onto the steel rod and epoxy it to the end of your new commutator, ( remove the plastic end first. )

**PART "A"**  
**MOTOR BASE**

The base is made of 1/8" aluminum, for a nice looking research prototype we also recommend 1/2" plexi glass if you do not wish to use the aluminum. If you are having trouble finding aluminum try your local Machine Shop, for plexi glass ask any Sign shop in your area or check your local yellow pages under plastics. If you did not purchase a kit from us.

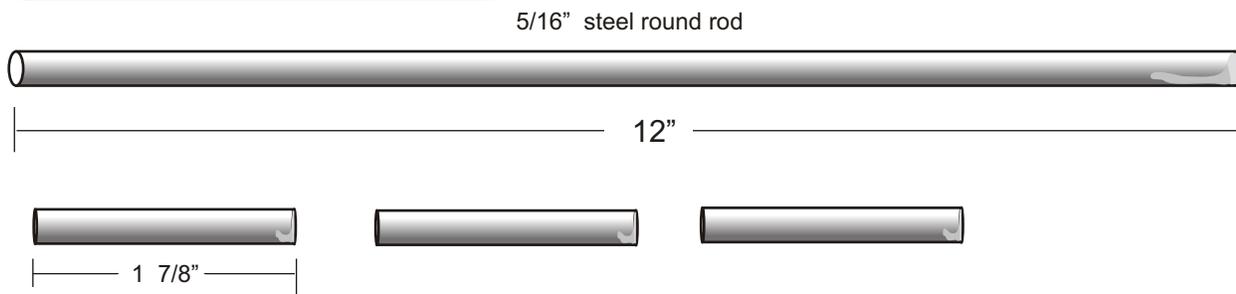


**PART "B"**  
**BASE LEGS**



Aluminum 1/8"channel, check hardware stores, steel suppliers, lumber yards. Drill these holes at: Drill holes to 7/64". You will need a qty of - 2. You will need to tap out each hole, ( Thread it ) using a 6-3 NC tap plug style.

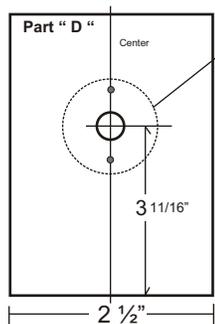
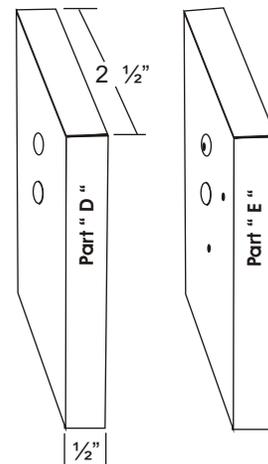
**PART "C"**  
**ROTOR SHAFT**



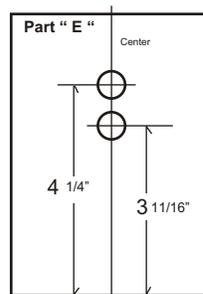
You will need three short pieces, two for the magnets to be used as spacers and one for a Shaft mold for making Commutator.

**PART "D & E"**  
**ROTOR SUPPORT ARMS**

Use 1/2" aluminum bar. Check at: Machine shops, Steel suppliers in your Yellow Pages, Steel salvage yards etc... Drill two holes on each arm, use a 5/16" drill bit. After you install roller bearing assembly on part " D ", remove roller bearing and drill a bigger hole using a 1 1/32" drill bit. On Part " E " Drill only halfway through, so the 5/16 rotor shaft can turn on it.



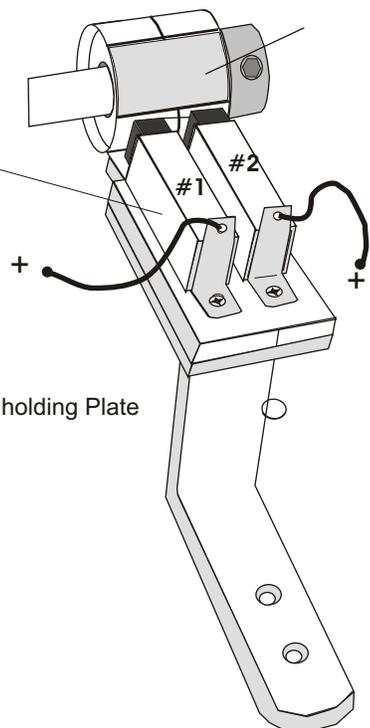
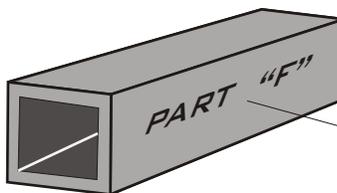
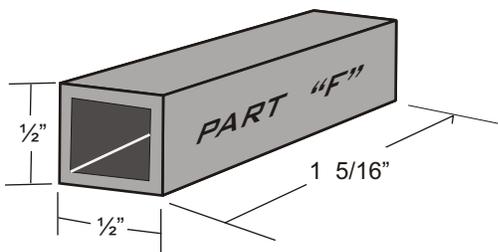
Roller bearing assembly. Use a large steel washer, assemble this after you put the Rotor shaft and arms together Once your shaft is running through Part " D " hole, you can then place the Roller bearing onto it. Grease the outer part of the bearing, Predrill 2 or 3 holes in the large steel washer, place the large washer over top of the roller bearing, center and mark your holes, use a 7/64" drill bit and tape out your holes with a 6-3 NC tap, then attach the washer to Part " D " with 6-32 x 1 1/2" bolts. Now mix up some J-B weld or Pc7 Epoxy and fill the inside beneath the washer and all around the roller bearing. ( Make sure bearing is greased well so you can remove it to later drill your larger hole. The reason you need to drill a larger hole later is so your rotor shaft can turn more easily. Let epoxy dry for 24 hrs, then remove your Steel washer roller bearing plate, then remove your roller bearing, drill a bigger hole in Part "D" then place you bearing back onto the molded roller bearing assembly.



# PART "F" BRUSH HOLDER

## ASSEMBLY

Cut two 1 5/16" x 1/2" x 1/2" x 1/16" Square steel.

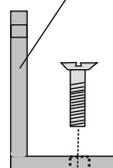


5/16" x 1/4" Motor Brush

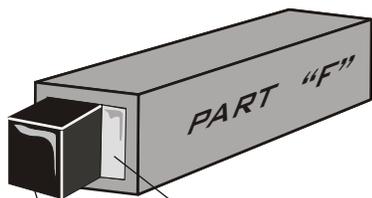


J - B weld or PC 7 EPOXY

Copper holding Plate

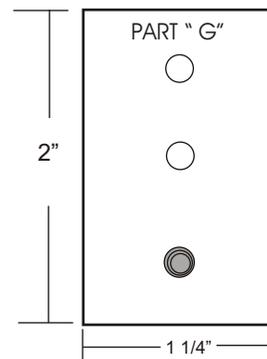


Plastic Separator



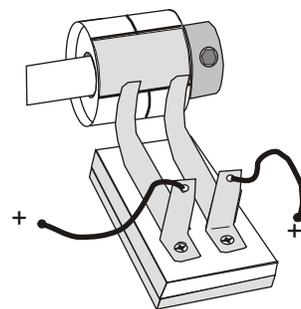
1/4"

Fill with PC 7 Epoxy or J - B weld about 1/4" deep.



**Brush: grease brush and place inside of square steel part # "F", Let sit and dry for 24 hrs, then remove brush and clean it off.**

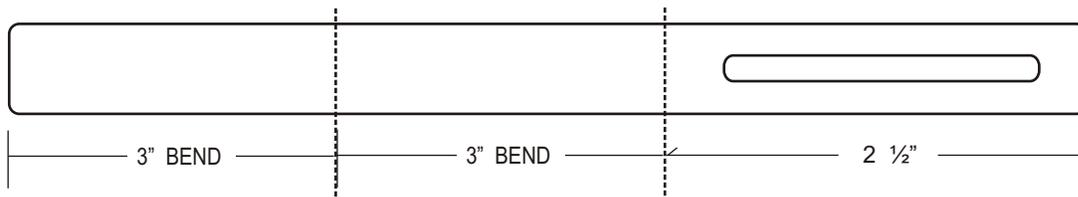
As an alternative to using brushes, you could replace with heat treated copper, which has some spring to it. Place the copper on part " M " and bend the copper upward.



**PART "M"**  
**BRUSH ASSEMBLY**  
**HOLDING BAR**

**NOTICE:** For a 220 volt dc output simply use two 12 vdc batteries in series and step up.

Use a 8 1/2" x 3/4" x 1/16" or best to use 1/8" steel bar. This is used to hold the Brush Assembly.



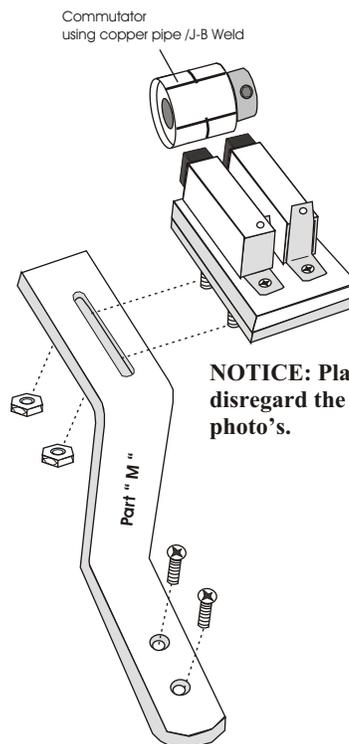
**PARTS "J"**  
**PLASTIC SCREWS**  
**& NUTS**

Two plastic screws with hex heads and two hex nuts are shown. The screws have a long threaded section and a shorter section with a hex head. The nuts are standard hex nuts.

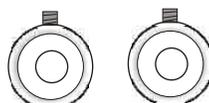
To attache Brush Assembly to holding bar.

**PART "K"**  
**ROLLER BEARING**

Inner Diameter 5/16  
You can buy these at Graingers.com or from a skate shop.



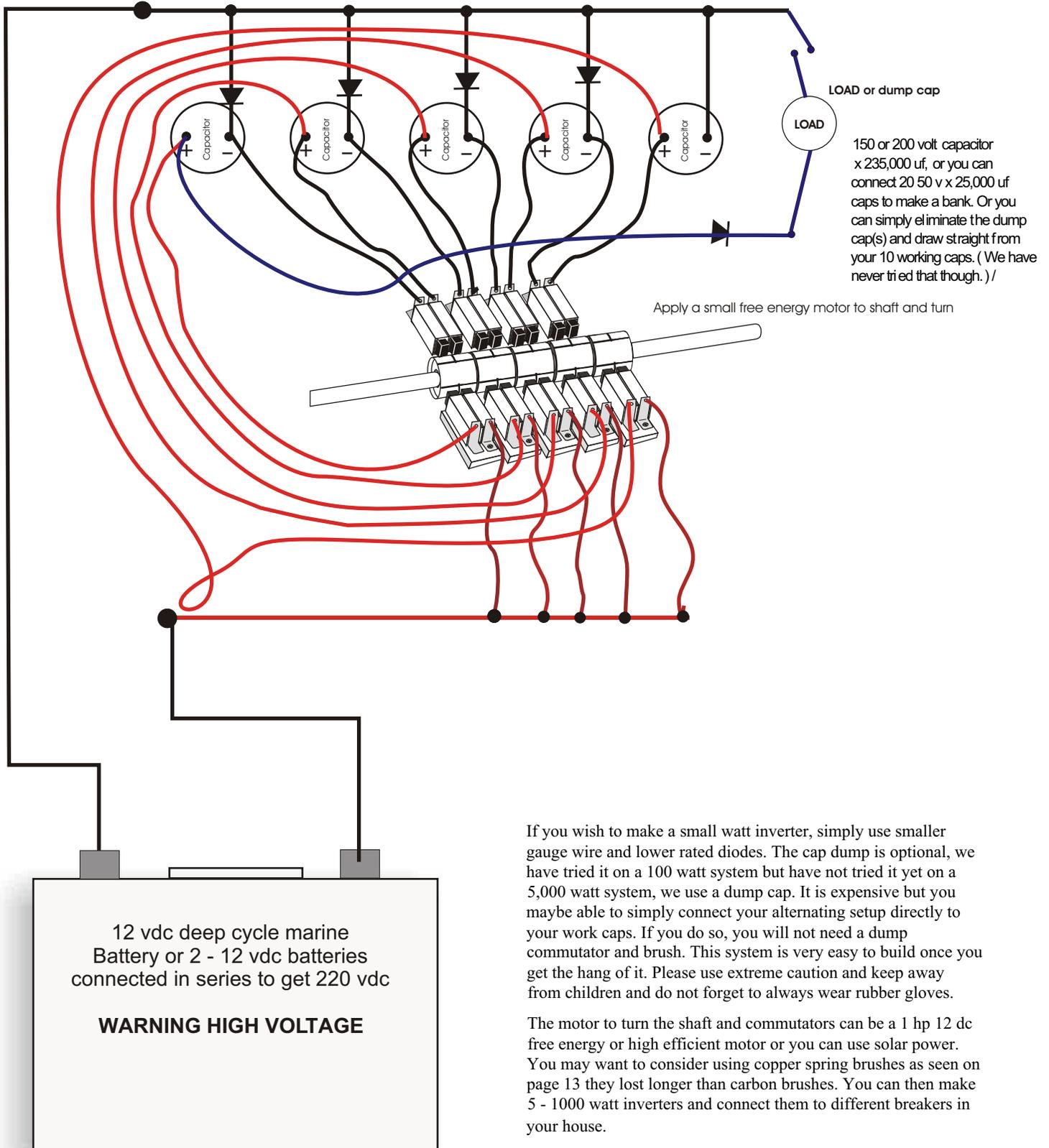
**PART "N"**  
**SHAFT COLLARS**



To fit 5/16" D or buy one and drill it to size 5/16"

You will need a qty of two. The first shaft collar is to hold the shaft into place, allow a 1/8" space or more between collar and Part "D" The 2nd steel shaft collar is to be epoxied ( Glued ) to one end of the finished commutator.

### Mechanically stepping up a 12 vdc source to 120 vdc



## 100 to 5,000 watt inverter / Type 3

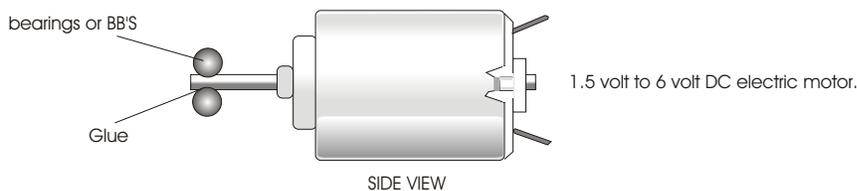
There are many ways in which to build a 500 to 5,000 watt inverter by 60 Hz.  
#1. You can buy an ISOLATION TRANSFORMER 115 V input with a 115 V output. The amperage of the transformer will give you the desired wattage that you will need. an amperage output voltage of 50 amps should do just fine for a 5,000 watt inverter. you can make your own isolation transformer by simply taking apart an old wall transformer and rewinding it. ( same amount of winds for both input and output. ) the size of the wire and how many winds will determine your wattage. the bigger the diameter of the wire the more wattage, But if you wind each side with not enough turns you can burn up the wire or it will get very hot and be less efficient It is best to just buy an ISOLATION TRANSFORMER. ( Remember an isolation transformer does not step voltage up or down, if you put 120 volts in you will get 120 volts out.

Now you must take the isolation transformer and apply a 120 volts DC on/off pulse to the input coil. you should open and shut the + positive side of the 120 vdc at a pulse of 60 times per second. Of course the only way you will know it is 60 Hz is by using a meter that measures Hz. or you can try running a house hold appliance that must run on 60 Hz and adjust the pulse speed that way.

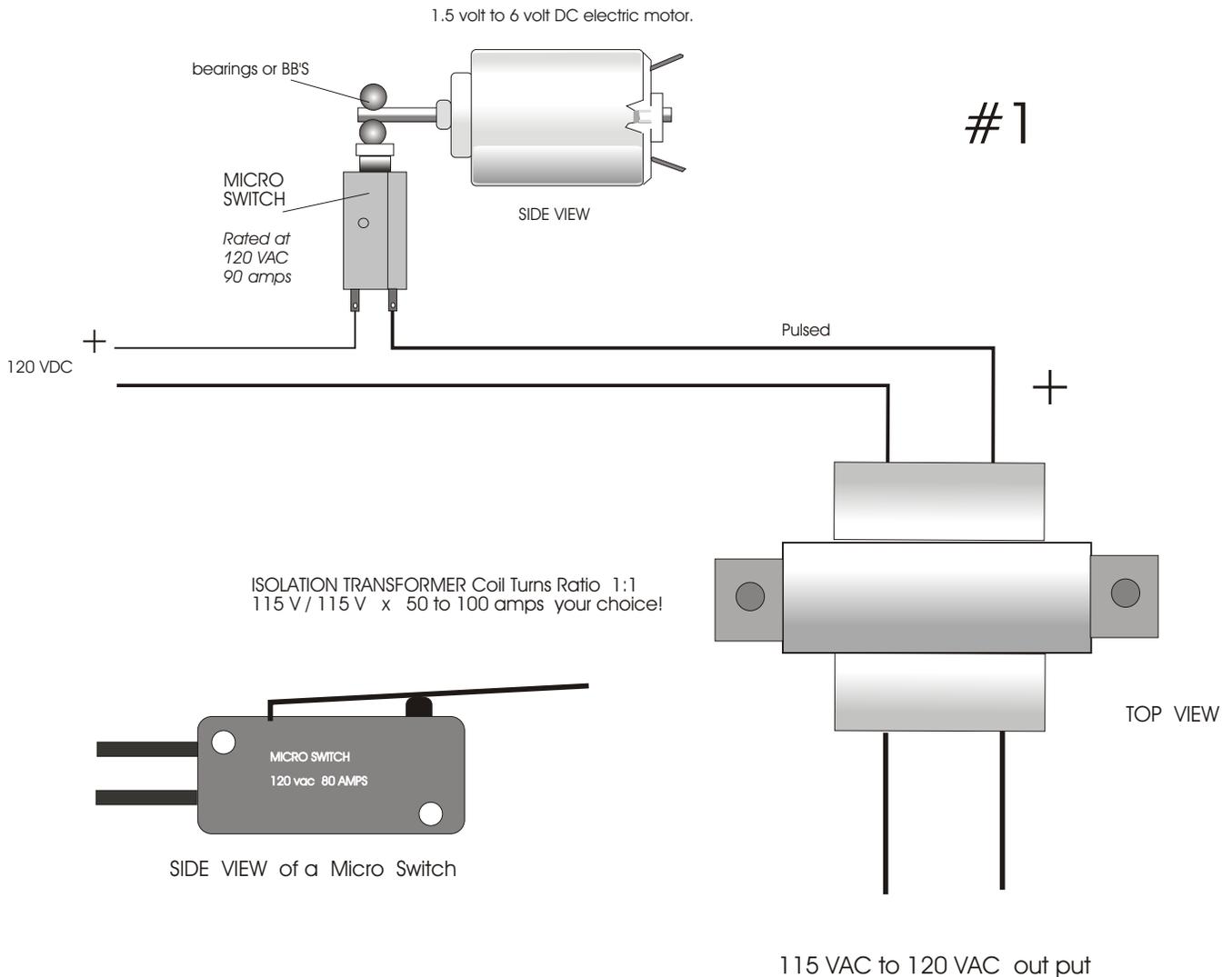
So why pulse the input? ( pulsing = on and off )

If you know anything about electronics you will know that when ever you shut off power to a magnetic coil you will get a reverse polarity! FREE ENERGY FROM A COLLAPSING MAGNETIC FIELD. and by doing this it will cause an AC current to flow to the output of the coil. Size of wire and how many turns you use will determine your output voltage also. If you buy the wrong transformer and you put 120 VDC into it and your only getting an output voltage of 108 VAC, then you can add another 12 VDC battery to increase the input voltage or you can buy and try another ISOLATION TRANSFORMER. they are not that expensive.

To pulse the input voltage you can use a small DC motor to turn a micro switch on and off. for our experiments we used a very small low cost, low amp hobby motor. ( One you would find in toys. ) we then soldered one bead of solder on one side of it's shaft, But it is best to have two beads. or you can use a hard metal glue, epoxy etc... to glue two copper or metal BB's to the shaft or you can use small ball bearings.



This small toy motor can be replaced with any size motor you would like to use. this motor pulsing method will also be used in the #3 method of our invention. The wattage and amperage you want your inverter to be the more every component you see below must be heavier duty to match the rated power you are wanting to draw from the batteries. Otherwise components will get hot and can burn up.



As the shaft motor rotates counter clock wise, the beads come around and hit the micro switch turning it off or on, It's best to buy a micro switch that turns on when pushed. you can also build your own contacts instead of buying a switch. You simply build one using the contact method that you will see in #3. you can use nuts and bolt heads as the contacts, this will increase your amperage rating to a high level, of course if you are an electrical engineer you can clearly see that you can use our methods of stepping up voltage and apply them to solid state circuitry. These plans are intended for those who are not educated in electronic engineering.

An Isolation Transformer can be used but it is not very efficient yet at this point, As you read on we will show even better ways of making very powerful inverters or even DC step up capacitor transformers, which can also be used as a high or low wattage inverter.

**WARNING!** Please build your inverter in a safe container, such as plastic or plywood. Better yet do what we did, we used an old computer box. Try your best to be neat about what you are doing, take your time, do not rush it.

**WARNING!** HIGH VOLTAGE CAN KILL YOU! Use rubber gloves! Keep away from children.

The following is an example of how to make a simple capacitor inverter, which can also be used as a DC stepup capacitor type transformer!

Invented by: David Waggoner of Creative Science & Research

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## **Our Step Up Capacitor Inverter**

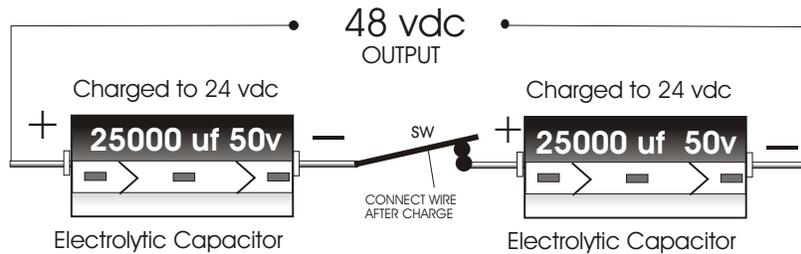
USING A 24 VDC INPUT

This type of inverter is unlike any you have ever seen before, Although capacitors are used widely in commercial inverters all over the world, We designed this system especially for the back yard researcher in mind, it is simple, low cost compared to buying a \$3,000 commercial inverter. You may already have all the parts you need at home in your shop. this type of inverter will use 24 volts DC or you can add more capacitors to allow it to run on 12 volts DC. but for example we will show you the 24 volt DC method only. 24 volts DC is much more safer than using 120 volts DC. there is much less chance of a spark igniting the hydrogen gases and less chance of someone getting shocked to death!

If you do not now what a capacitor is then do not build this inverter yet. Go down to your local Radio Shack and buy a \$4 beginners book on electronics called: GETTING STARTED IN ELECTRONICS, ( Page 32 ) This book will also teach you what an SCR is. Most of the parts can be purchased at Radio Shack or purchased by mail catalogs: call these 2 company's and ask them to send you a free catalog. HOSFELT Electronics inc. 1-800- 524-6464 or ALL ELECTRONICS CORP. 1-800-826-5432 Peerless Electronics 1815 s. 7th St. Louisville, KY. 40208 502-637-7674

### **SO HOW DOES IT WORK?**

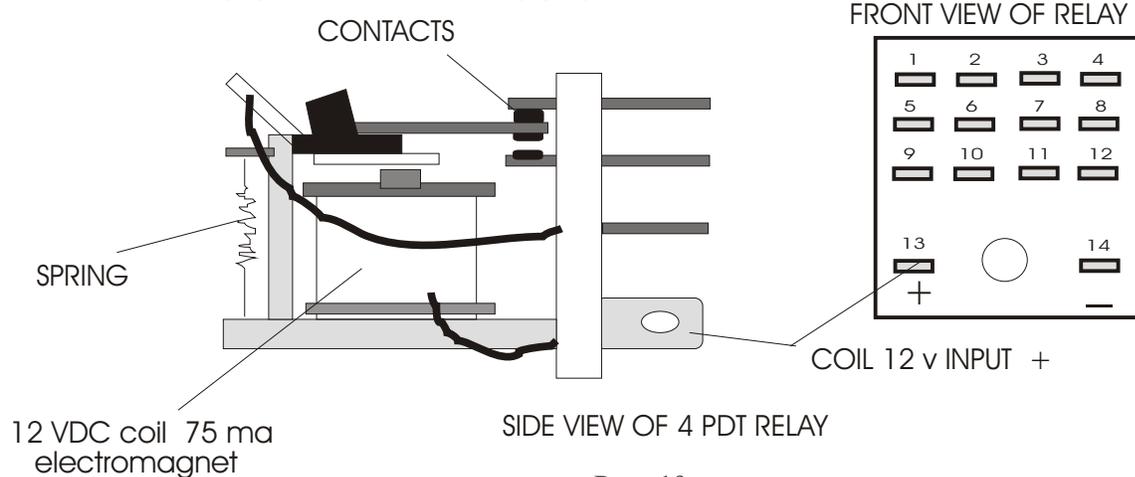
First of all we start with 2 deep cycle marine batteries connected in series to get 24 volts dc. Now we must take that 24 vdc and step it up to 144 vdc, and we will do that by using our new method of using capacitors as batteries, put together in series, EXAMPLE: Charging and using 2 capacitors; ( see page 19 ) Charge #1 capacitor with 24 vdc and charge #2 capacitor with 24 vdc, Now remove the charge and each capacitor now has a full charge of 24 vdc. ( Each capacitor should be taped to your table for this experiment.) now using one alligator clip or wire, connect the + to the - as you would 2 batteries and you will now double the voltage from 24 vdc to 48 vdc. BE CAREFUL DO NOT TOUCH THE ENDS OF THE CAPACITORS. YOU MUST DISCHARGE ALL CAPACITORS WITH A WIRE BY SHORTING THEM OUT OR BY CONNECTING A LOAD SUCH AS A 100 WATT LIGHT BULB.



**Please read this it is very important!** YOU CAN NOT CHARGE EACH CAPACITOR WITH 24 VDC AND ALSO HAVE THEM CONNECTED IN SERIES ! You must do one or the other never at the same time! 1st you charge each capacitor, then 2nd you disconnect that charge, 3rd you then connect each capacitor ( that now has that powerful 24 volt charge ) and connect them in series. now it would be stupid to connect and disconnect all of this by hand. So what you must do is use switches! You can use all relay switches 1- 4 pole double throw and 5 - 30 amp auto relay switches, or you can use 1- 4 pole double throw relay and 5 - SCR's (Silicon-Controlled Rectifiers.) as switches. ( It is very easy to do!) Using SCR's is much quieter than using loud relays. you can buy low power SCR's at Radio Shack or you can buy High amperage SCR's by catalog. use 70 amp x 200v SCR's for a 1,000 watt unit, or 275 amp x 600 volt SCR's for a 5,000 watt unit. FIGURE #1 is the Charging diagram, this is where you will need to use the 4 pole double throw relay w/1-70 amp SCR on the positive lead, ( Radio Shack type cat. no. 275-214 12 vdc plug in relay. ) This relay is always in the up position, so the capacitors will be charging as soon as you connect the battery to the relay, then when you apply 12 vdc to the coil of the 4 PDT relay it will move the contacts down and this will turn off the charge. All of this will happen very quickly! Because instead of connecting the relay coil to the 12 vdc battery by hand you will be using our MOTOR MICRO SCR SWITCH METHOD The switching must be fast in order to charge the main capacitor bank, which you can apply your load to this, such as a 100 watt light bulb etc... DC only at this point. So you see what we are doing here is eliminating the need to place 10 - 12 vdc deep cycle batteries in series to get 120 vdc. we are simply using capacitors instead. But remember no matter what you do you will always need 10 deep cycle batteries for any average size home. NOTE: You could also build your own relay and use large bolt heads for contacts, and make your own 60 amp 4 PDT contact relay. But its not advisable, Using SCR's as switches work much better!

We Strongly Recommend that you Build a 100 watt inverter first using relays. Use 120 VDC to light a bulb!

### THIS IS WHAT A RELAY LOOKS LIKE





# fig #2 CHARGING CIRCUIT DIAGRAM

Continued from page 10 fig #1

**SO WHAT DOES STACKING MEAN?** It means just what it sounds like, you stack in parallel. If you have a hard time in your area finding capacitors or diodes that are rated that high then you can buy cheap ones and stack them. its much easier though if you buy the rating you need. example; stack each diode or capacitor on top of the other and connect them in parallel. Example: If you stack 2 - 35 amp x 150 v diodes in parallel you will get a 70 amp output. the same with capacitors. you double your ampereage and wattage.



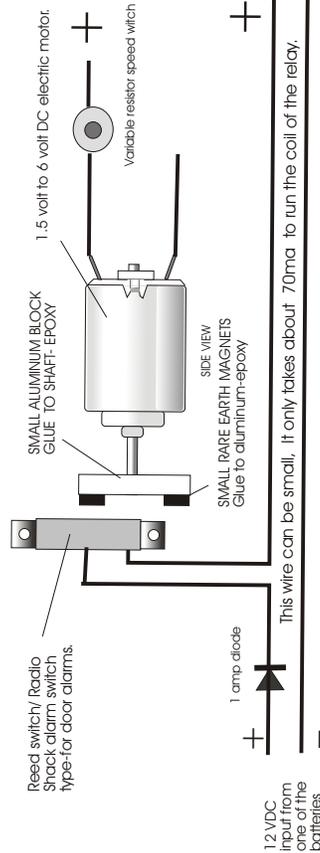
We are trying to make this simple so anyone can build this. If it is still to much for you, we are sorry, we have done the best we can for now.

### DIODES

## THE ON/OFF PULSER SWITCH FOR RELAY

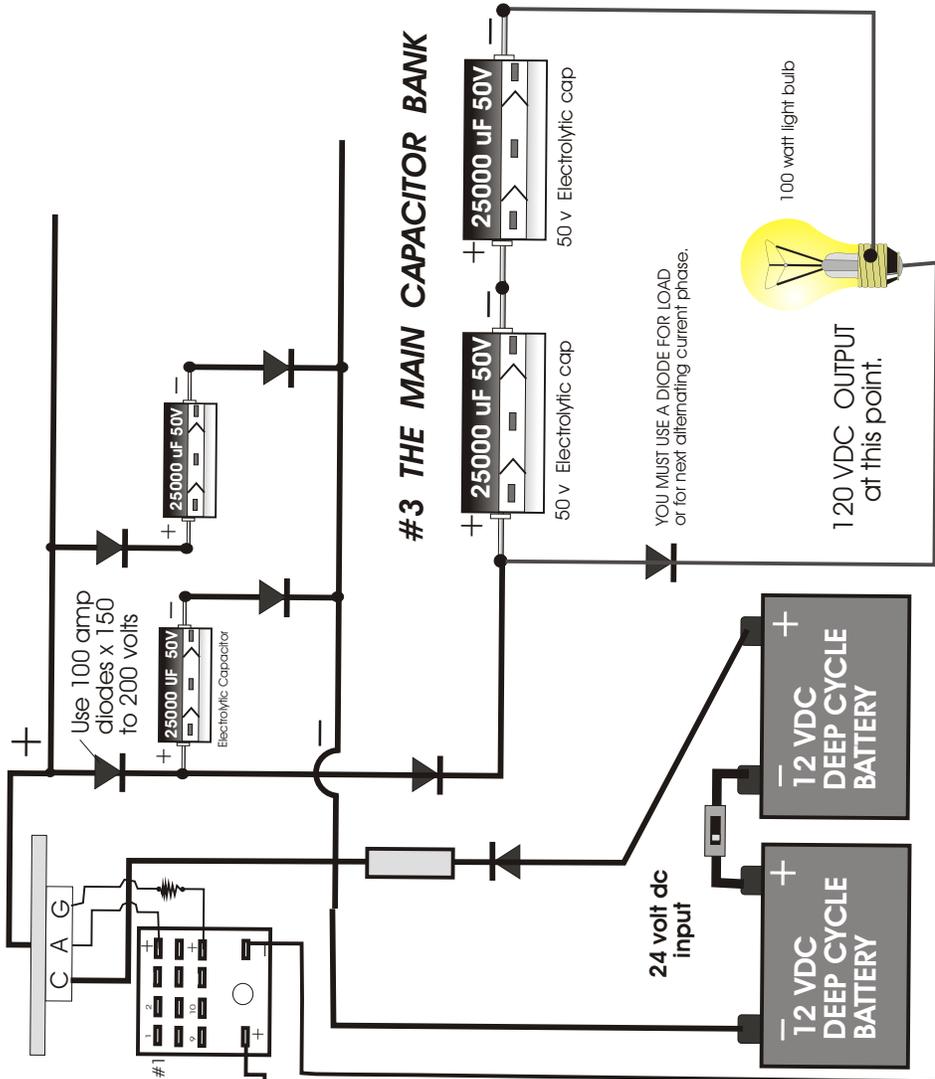
Now it is time to connect the pulser motor switch. This is on / off set up using a small reed switch, ( Door alarm switch ) it will be used to turn power on and off to the relay coil, this will cause the electromagnet to come on and off, this will also cause the contact arm to move up and down. See also page 6 and 7. So when the relay coil is off the capacitors are charging, and when it is on, it moves the contact arm down and disconnects the 24 vdc battery so it will no longer charge.

Now when it is in the down position, it will turn on the power to the 5 small reed relays in Fig #3. Causing all 5 SCR's to



12 VDC input from one of the batteries

ALL CONNECTIONS MUST BE SOLDERED WELL



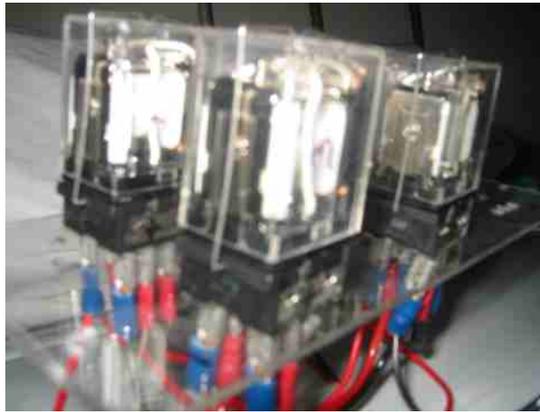
As the shaft motor rotates counter clock wise, the magnet comes around and turns on the reed switch turning it off and on, you can replace this pulse reed and motor switch with an electronic on / off system. ( a pulser generator ) ( it is in the electronics beginners book I told you about earlier. by building an electronic on / off pulser to replace the Reed Switch, the unit will be much quieter. Also place manual on / off switches where needed so you can power up your inverter and turn it off. You will actually need 2 reed and motor switches, this one is the first. and the 2nd one is used for alternating the dc to ac using another relay and 200 amp SCR's. it is all really very simple and not that hard or expensive to build.

The following page shows the use of SCR's to connect the charged capacitors in series to step up the incoming 12 vdc or 24 vdc current.

Please notice that you can use 4 PDT relays to do the same thing which we have fully tested and found the relays do great! We have not fully tested the SCR's yet, but we have done some bench test's and the SCR's look like they will work just fine. If they do not you may know of a better way, please let us know because we do not have the time right now to test and develop the use of SCR's, We are working on more important projects.

Thank you  
David Waggoner

Tesla@fuellesspower.com



Low amp 4PDT Relay Switches



Low amp 4PDT Relay Switches



SCR's High amp for switching



High Amp 4PDT Relay SW

SCR's High amp w/heat sink aluminum

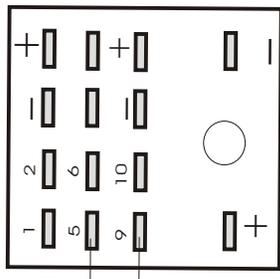
# fig #3

## CONNECTING CAPS IN SERIES

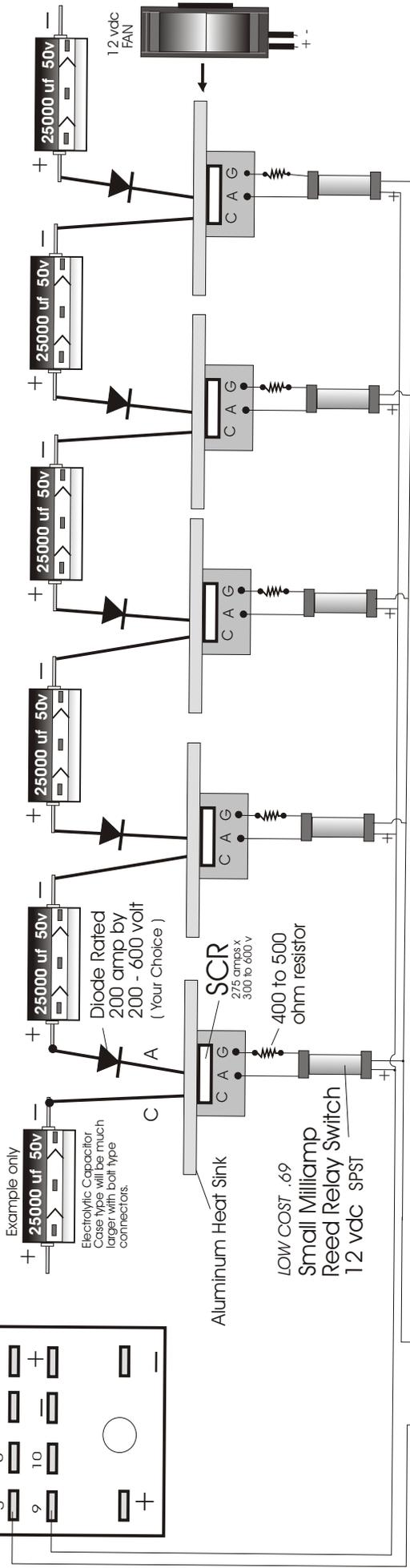
Now as seen in page 11, When the relay is turned on, the relay arm will move down and out of charging position and will move to #5 and #9 relay position as shown, this will switch on the SCR'S, and will connect each 24 volt- charged capacitor in series and give you an output of 144 volts. Again this will charge #3 The Main Capacitor Bank ( as seen on page 13. ) You can replace with 12 vdc 30 amp auto relays. but is not advisable **WARNING:** never charge and turn on the SCR's at the same time! It will burn up your SCR's. This is why we use a relay switch #1. Even though the relay will be switching very fast, the charging and the SCR's will be on at different times. If you are going to build an inverter that uses much less wattage, Then again all of these parts can be purchased at any Radio Shack store. Note: For those of you who do not know what an SCR is, It is a Silicon-Controlled Rectifier. You can move a large amount of current with just a very small amount of current just in the milliamps, to turn on the switch to allow the very large current to flow. You can buy 6 amp SCR's at Radio Shack, Play with these first, and learn and then buy the expensive SCR's that you will need for 5,000 watts. Buy 275 amp X 600 volt SCR's for a 5,000 watt unit. Look in your yellow page phone book for electronic suppliers. I found 275 amp SCR's as low as \$60 ea.

### FRONT VIEW OF RELAY

Radio Shack part # .275 - 214  
12 VDC plug-in relay.  
contacts rated at: 5 A at 125 v



#1

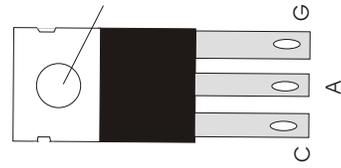


Top View

**Your SCR May look Something like this.** Depending on what size you buy.

Hole for bolt and nut to attach to aluminum heat sink. heat sink can be square or any size you want, it is there to help keep the SCR's cool.

275 amps  
x 300 - 600 v



SCR  
TO-220 case  
or what ever  
your supply  
house has.

Side View

These capacitors are the same capacitors as seen on page 10, we did not draw in the other charging connections so you would not get confused, It would look like a bunch of spaghetti, of course this circuit and the circuit on page 10 will all be hooked together, It will be the job of the 4PDT relay to keep them separate. We are trying to make this as simple for everyone as possible This type of step up transformer / inverter works very well. the capacitors and diodes will last a life time!

C = Cathode, A = Anode, G = Gate. See Radio Shacks getting started in electronics book. it will tell you about SCR's

# DC to AC Alternator Inverter

#579

For low wattage applications try this below.. For High wattage use the oil drum brush and commutator method.

So you have built everything up to this point and you have even lit 100 watt light bulbs with your new 120 VDC STEP UP CAPACITOR TRANSFORMER. Well it's great for lighting bulbs and running electric heaters, but now you want to run much more, such as TV's, VCRs etc... that use AC. ( NOTE: you can take the AC coil transformers out of each appliance and step down the DC voltage to the required voltage and amps and run on 120 VDC. )

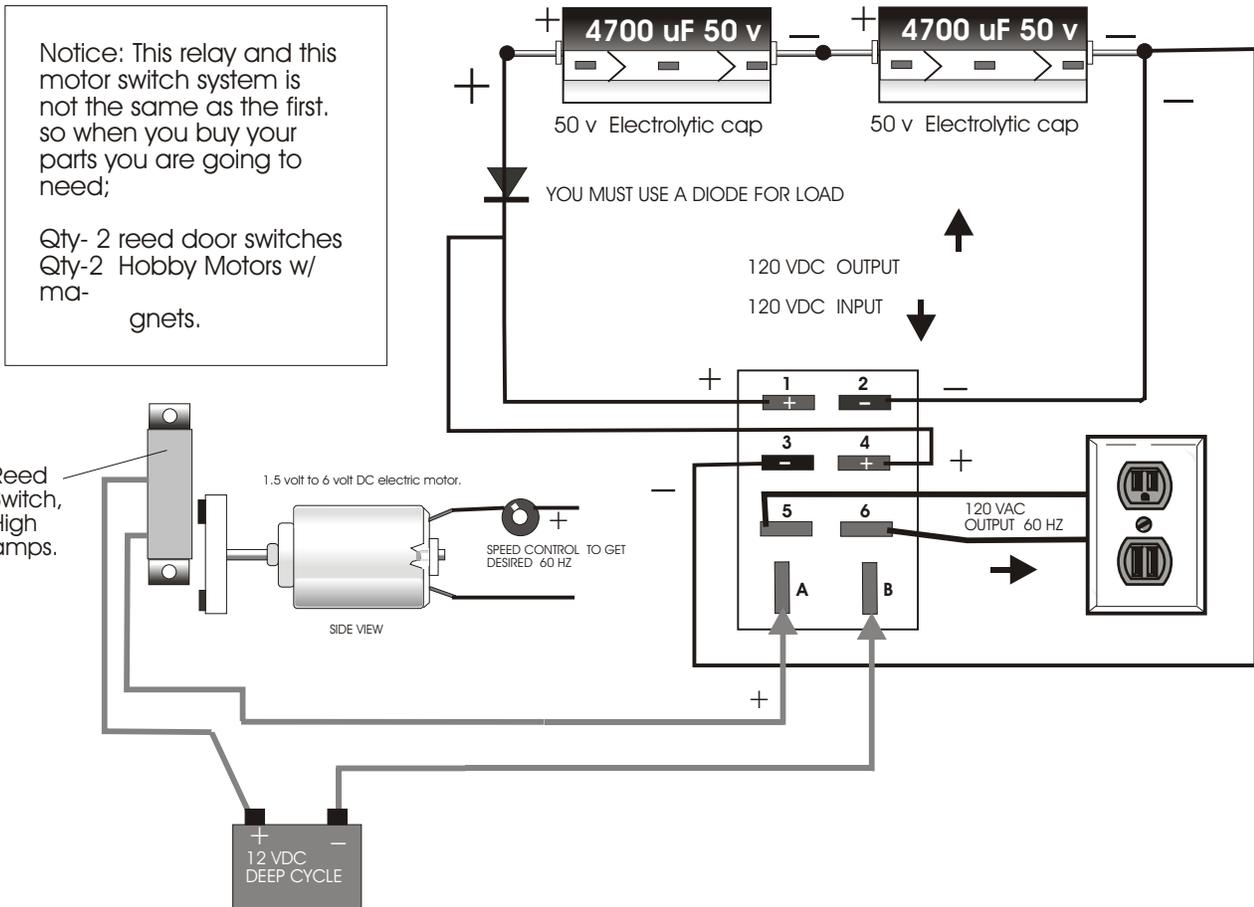
So what we must now do is take that 120 VDC and turn it into 120 volts AC. Which is very simple to do. You can do this electronically or you can do it mechanically by using a store bought 2PDT relay or by building your own relay. We suggest you build your own relay, see bottom drawings. NOTE: If you are not getting 120 VAC output but the voltage is much less, then you must increase the 120 VDC output to a higher voltage until your alternator method is outputting 120 VAC.

fig #4

## #3 THE MAIN CAPACITOR BANK

From page 10 fig #1

( THIS IS FOR METHOD #2 THE CAPACITOR INVERTER )



Notice: This relay and this motor switch system is not the same as the first, so when you buy your parts you are going to need;

- Qty- 2 reed door switches
- Qty-2 Hobby Motors w/ magnets.

From same 24 vdc battery bank.

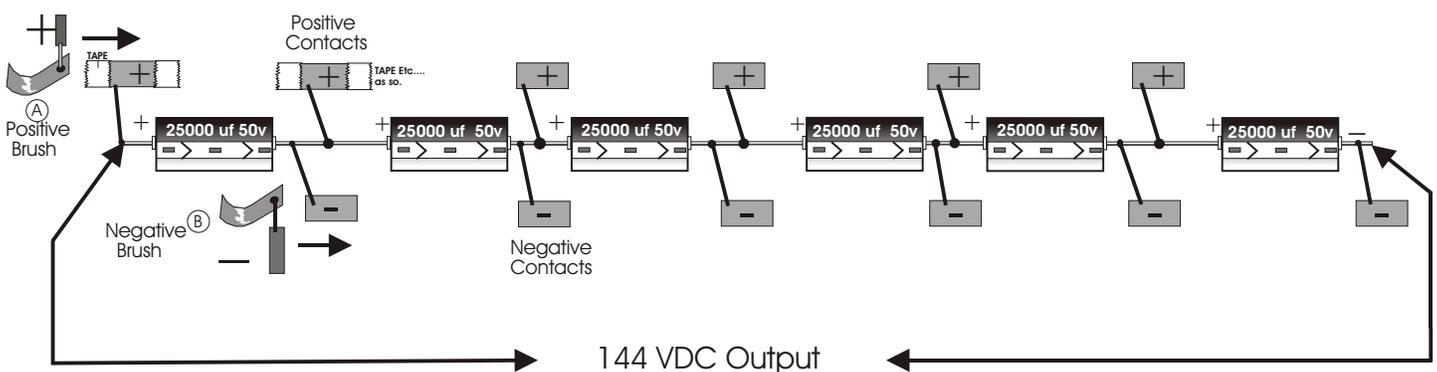
# Type III CAPACITOR INVERTER

**OPTIONAL:** Here is another way that you can make a high voltage inverter. Can be done mechanically or by using SCR's or Transistor.

To start; Instead of connecting and disconnecting capacitors in series as you may have seen in our type II Capacitor Inverter, In this new method you simply keep all caps connected in series as shown in figure #1. Fig. #1 is to help you get an understanding of how it works. The positive and the negative brushes slide over the contacts, moving together, creating a 24 VDC charge in each capacitor. For this simple experiment you will need to connect 6 - 50 Volt x 2200 or 25,000 uf capacitors together in series. ( solder all connections.)

Now tape down the caps flat onto a table top, Now cut 12 pieces of thick or thin ( thick is best! ) copper or aluminum to 1 1/2" x 3/4" squares and tape them down as shown in figure #1. Now solder your wire to the contacts and the caps as shown. Now using rubber gloves place the positive ( 16 gauge wire automotive type ) A Brush onto the first + contact and the negative B brush on the negative contact. Now slide wires down the rows at the same time and at the same speed to charge each capacitor at 24 VDC. Slide and charge all the way to #6 cap. So you have now charged all caps and your DC volt meter should now read 144 VDC. ( Be careful not to touch, it can KILL! Use rubber gloves. )

Now at this point no load is connected. Always connect load or a 120 VDC cap bank x 25,000 uf AFTER YOU HAVE CHARGED CAPS, To avoid large sparks that can burn up your contacts. So again after you charge 144 VDC cap bank you then use a magnetic reed switch to turn on load.

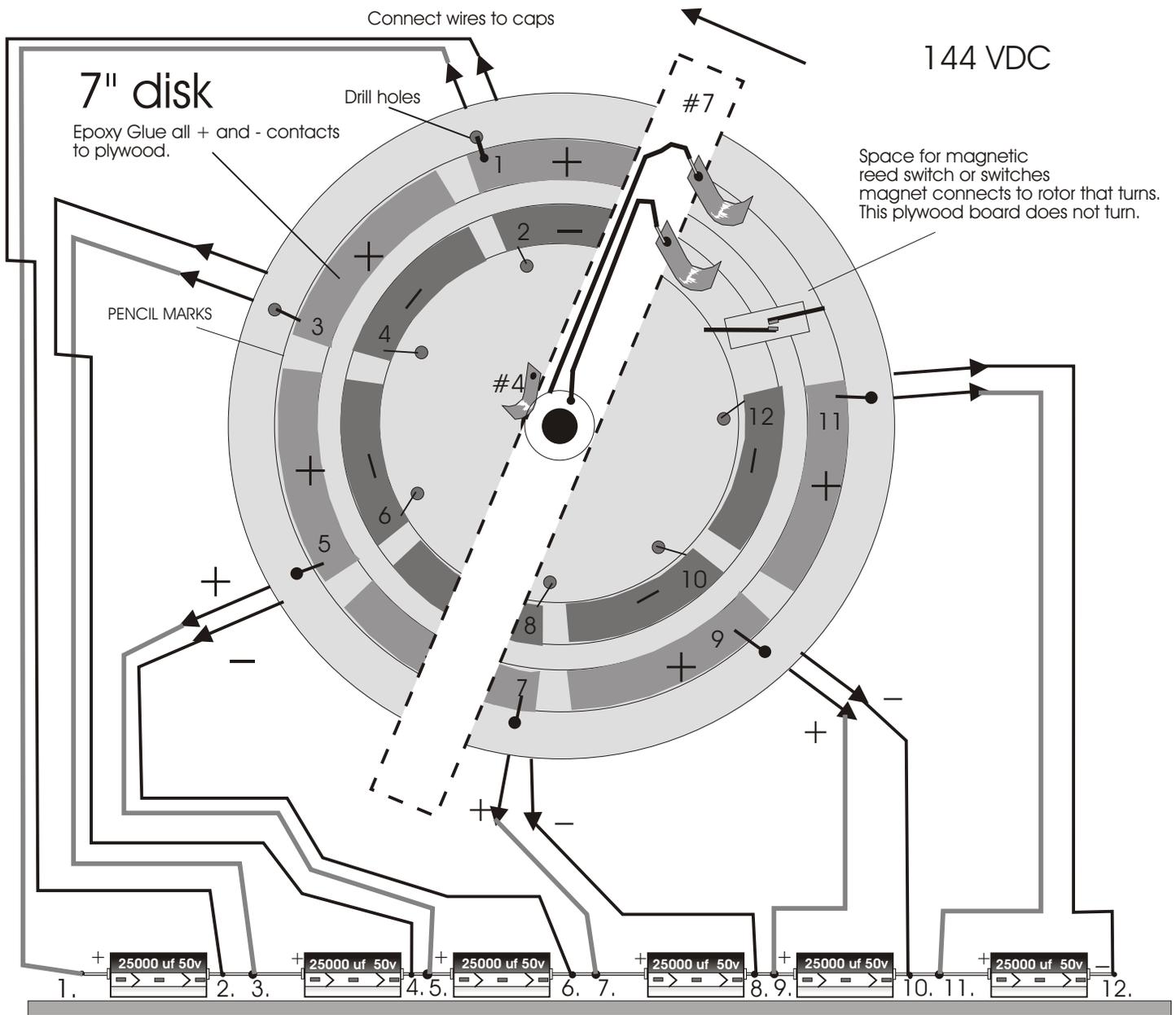


A and B brushes move at the same time, moving all the way to the right to #6 cap and a little past #6, and if you will picture a magnet connected to your wrist that will then switch on the magnetic reed switch to power the load or charge your 120 VDC cap bank. Reed switch rated at 5 to 10 amps. Now if you will picture the contacts on a round stationary piece of plywood board and a rotor arm that turns with the brushes on it. to make contact with the cap contacts.

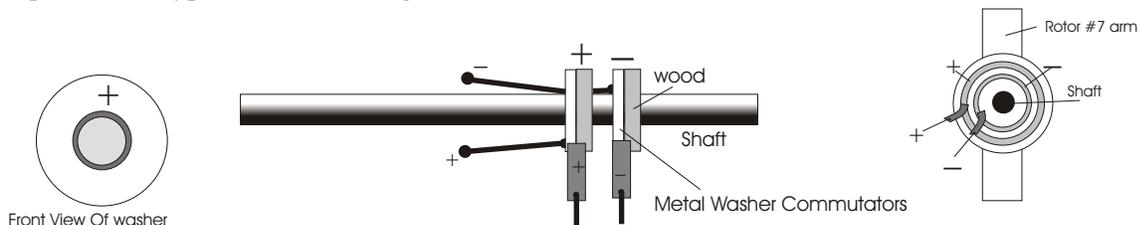
# Type III CAPACITOR INVERTER

#579

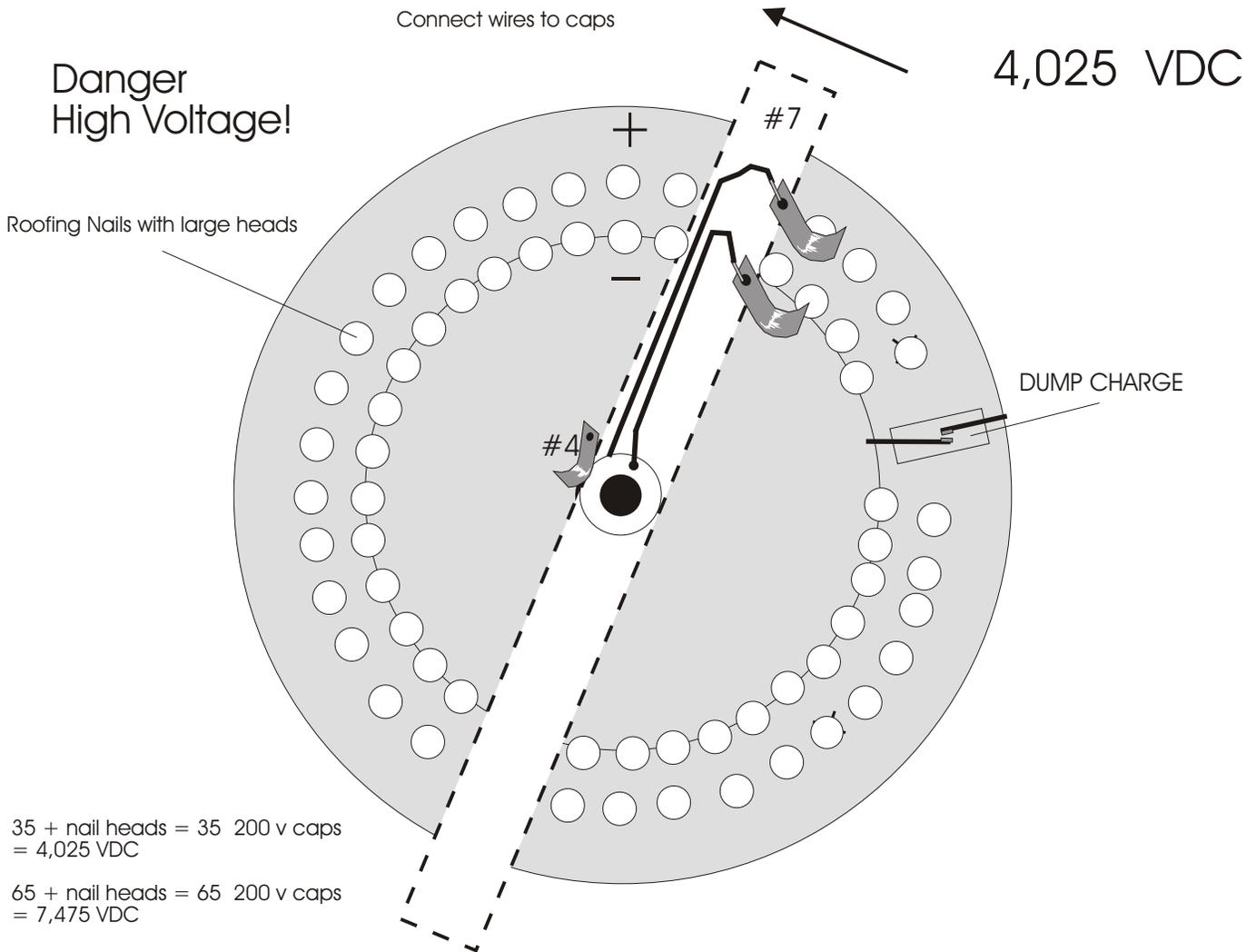
Below is a crude mechanical way to replace the relays if you are on a very tight budget.



Now as #7 rotor arm moves counter clockwise, it moves the contact brushes over 1 & 2 and so on. this all happens at a high rpm. ( You can try with lower Rpm's to meet your needs.) The #4 brush is actually a set of brushes with 2 round commutators, the same commutators you would see in a AC motor, ( Not a DC motor!) the 24 VDC from the batteries travels through the #4 set of + and - brushes and travels through the 2 separate round commutator contacts, up through the 2 wires, through the brushes and onto the stationary contacts. Then to the capacitors charging them at 24 VDC each = 144 VDC. The commutator can be simple, using a 2 washer's a plastic spacer to protect from shaft, and some epoxy glue. or place a flat type onto the moving rotor arm.

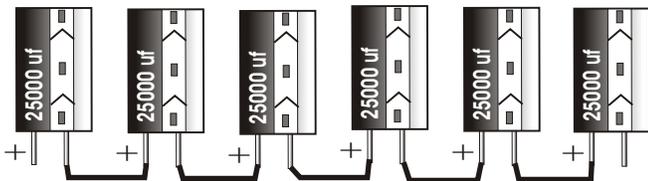


Here is another crude mechanical way to replace the relays if you are on a very tight budget.



INPUT is 115 vdc: Use a 12 volt DC battery connected to a 500 watt INVERTER ( Which we sell if you need one.) that will step up the 12 VDC to 115 VAC 60 Hz.

Now use a 150 v volt to 200 volt Diode to change 115 VAC to DC. Or for a greater input of 200 VDC build a Voltage doubler with caps. see our high



Use 35 to 65 of the upright caps, they are cheaper to buy and easier to mount that many caps. Use roofing nails with large heads and nail them into plywood board. now sand heads and the points until shiny, now solder all nails at points to the capacitors. see page 16. The amount of high voltage and amperage is unlimited. this is very easy to build!

Output Amperage will depend on the size of your capacitors you decide to use. The higher the uf, the higher the amps! High Voltage x High amps!

Is great for a step up High voltage source for our plans #500, #362, #459, etc...

Caps rated at: 200-250 volts

## Our 5,000 WATT INVERTER

### A SIMPLE WAY TO ALTERNATE A DC CURRENT

Well you know how to build the 120 VDC battery bank by now. so now lets go on to understanding and building a way to alternate that 120 VDC to AC.

First I will show you a simple low wattage way to alternate the DC. By using a radio Shack 2 pole double throw 12 vdc relay. The relay is rated at 5 amps so relay contacts will not burn out unless you go over 5 amps. which makes this a good 100 watt inverter. See figure one. the top two input connections you simply connect to the 120 vdc battery bank. use a 5 amp 120 volt diode for the positive side of battery. use a 5 or 10 amp fuse. Use the proper wire size so your wire will not burn up when load is applied. Now connect another of the same to the 2nd output but put the + side to the right and the - side to the left. ( Be sure to use another 5 amp diode and fuse. now when a 12 vdc on and off pulse ( 60 Hz ) is applied to the coil of the relay. this causes the common arm to move up and down, which in turn is alternating the DC current to an AC square wave. You can build this large enough to handle as much wattage as you desire, By building your own large scale homemade 2 pole double throw relay switch. Contacts should be made very large and changeable. They can be made with large bolt head rounded off. this same method can be done with a small low amp relay and by using high amp transformers or SCR's. you will never need to change contacts. The transformer or SCRs take the beating. They will get hot so use a 12 vdc fan to cool them. make sure they are connected to a aluminum heat sink.

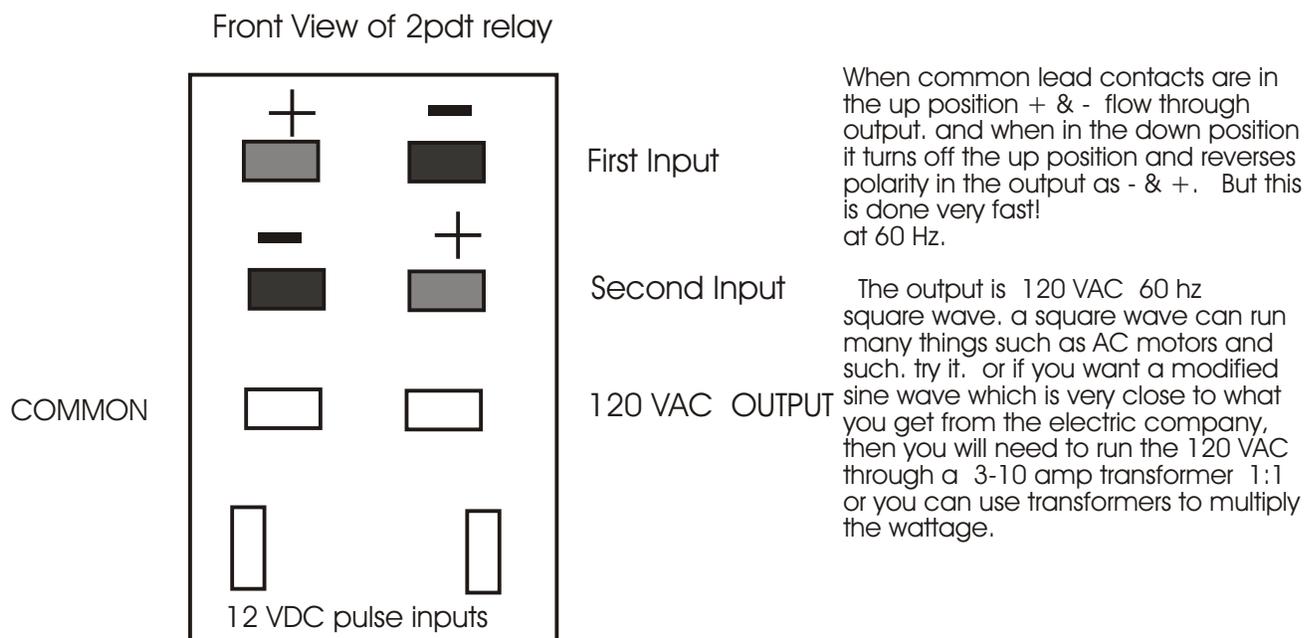
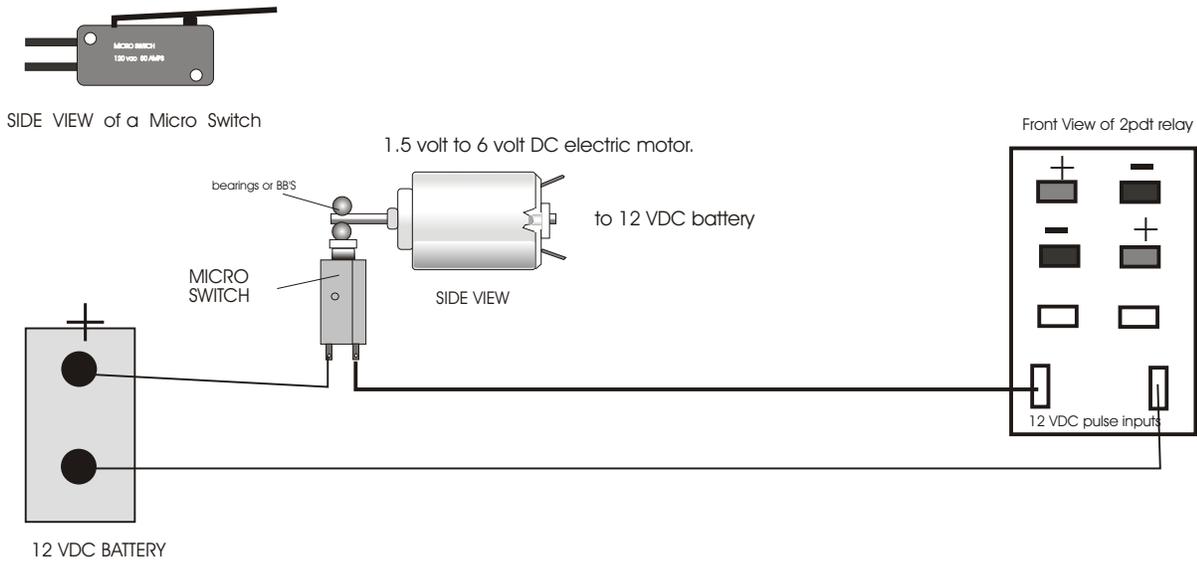


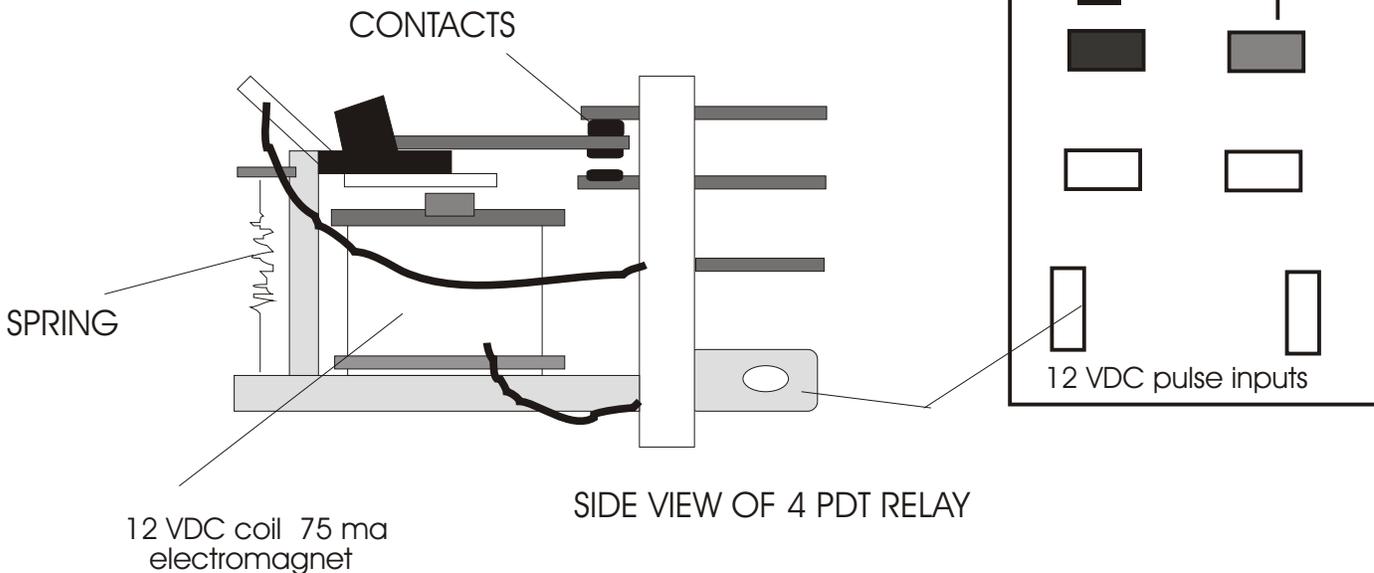
Figure 1



This is an easy way to pulse the relay to 60 Hz, ( If you do not know how to make a 60 Hz pulse electronic generator. ) Please note that the 2pdt relay can be replaced by using 200 amp x 30 to 70 amp Transistors or SCR's. You use them in the same way as switches. and then use a small low amp 2pdt relay to switch them on and off. This way the SCRs or the power Transistors take all the amperage punch! and you wont have to worry about your contacts burning out.

Figure 1

**THIS IS WHAT A RELAY LOOKS LIKE**

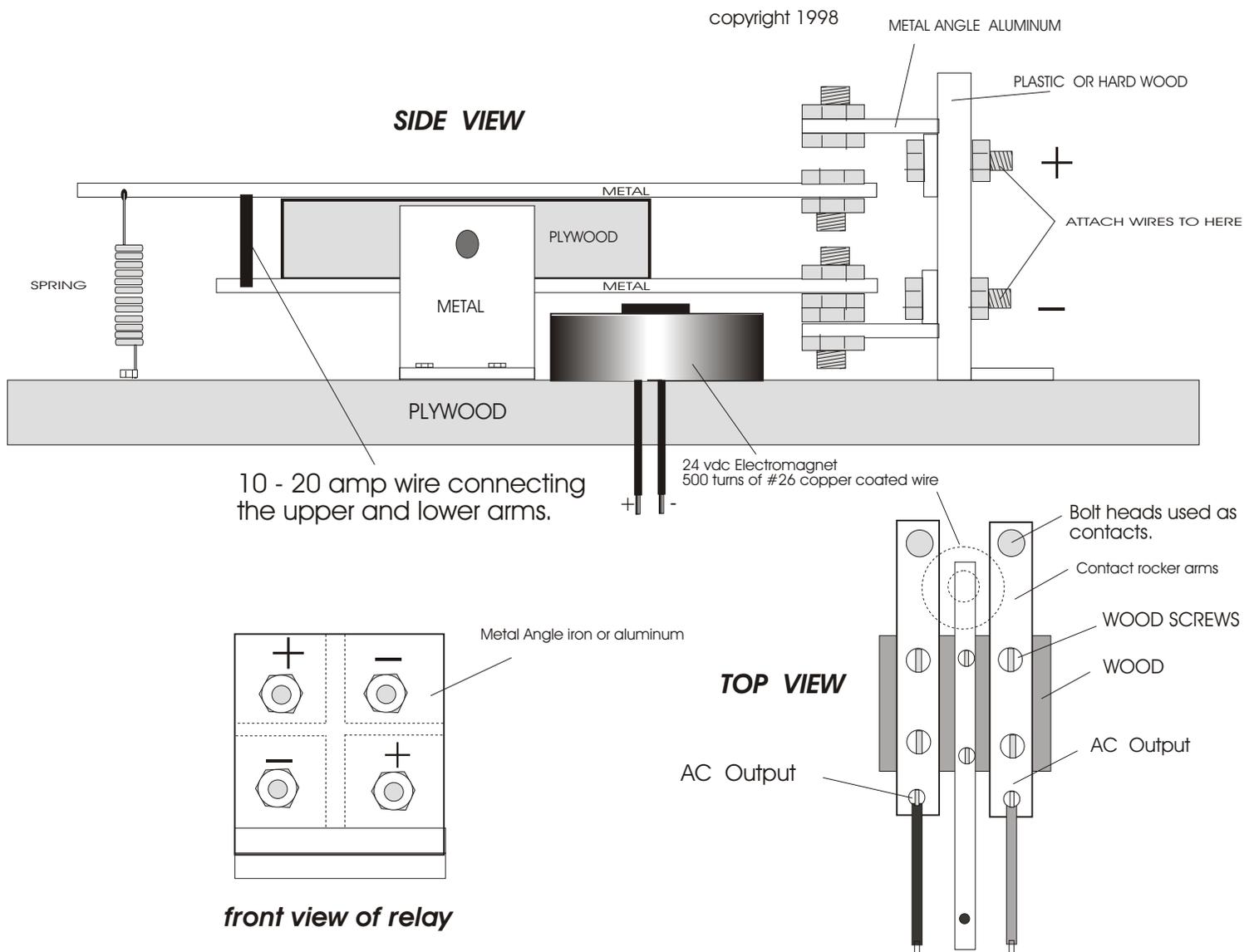


The DPDT relay is being used to alternate the DC current. When contacts are in the up position + & - position current runs through the 120 vac out put wire, and when the relay is turned on by 12 vdc 15 ma, the polarity reverses in the wire to - & + , this all happens very fast and creates ALTERNATING CURRENT TO THE OUTPUT! again as the small DC pulse motor is running it switches on and off a reed switch causing the relay contact arm to move to upper contacts and then to the lower contacts.

Now getting back to the relay, It is best to build your own DPDT 275 amp relay. You can make the contacts changeable. The contacts can be made of bolt heads. For best results sand and round off top of bolt heads. You must find very large bolts and nuts to take that much amperage. Once you have it built you can have it working vertical dipped in a oil bath. Do not dip electromagnet coil into oil, it will short out! Just the contacts.

DPDT = Double pole, Double throw

## Homemade Changeable Contact Relay



# THE HOMEMADE RELAY INVERTER

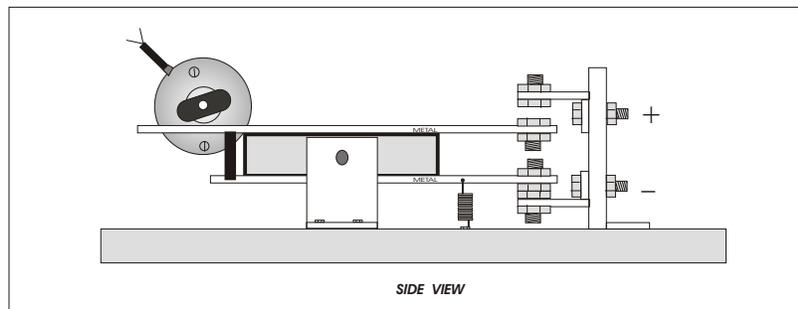
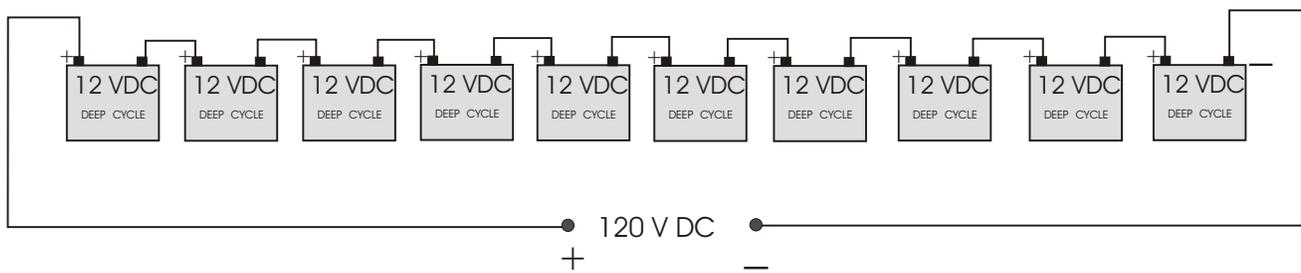
#579

## #3 Method

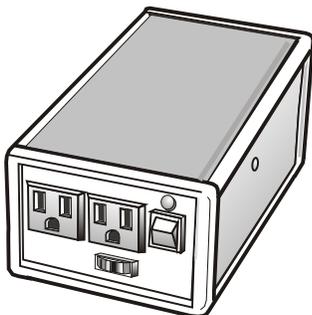
By now you may have figured out how to build the #3 inverter method, This is by far the most simplest and easiest way to build an inverter, BUT IS ALSO THE MOST DANGEROUS WAY! again be very careful high voltage can kill!

By using the 120 VDC battery bank on page 2 , and using the homemade DPDT relay on page 14, You will be able to build the most powerful inverter of all, If you use your brain you will soon learn you can get much more than 5,000 watts from this method of invention.

If you have no load there will be no spark on the contacts, When a load is applied a spark will appear and a break down of the bolt head contacts will begin, the greater the load the faster the contacts will wear. contacts can last a long time. But one should employ a safety net just in case the contact stick together, this will cause 120 VDC to try and run your AC appliances, although I do not believe at all that it will hurt them, But you will get a humming noise coming from there AC transformer or AC motors from the AC appliance, or you may not get a humming noise at all, the AC appliance will simply stop working but all light bulbs in your house will continue to work since they can be run on AC or DC current.



## 5,000 WATT INVERTER



You can encase this in a simple plywood box or get as fancy as you want. You can purchase plastic boxes from the catalogs I told you about.. be sure to put a 120 v light on front panel with a volt meter, and please do not try and run this without its own separate fuse box. you can use 120 VAC fuse boxes that you can buy at any hardware store. PLEASE BE NEAT AND CAREFUL.

# #579 Update 5,000 watt inverter

Sorry for the inconvenience, But we left something out Of our #579 plans and have not had the time to redo them yet.

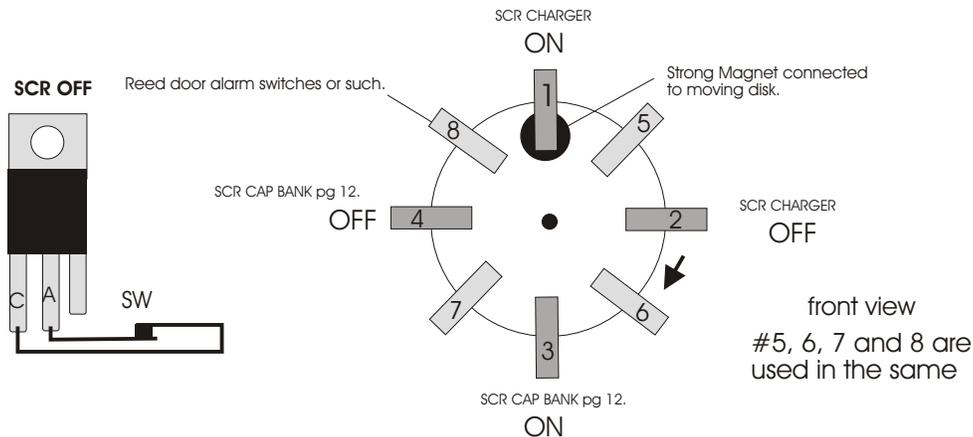
This update is for the possible 5,000 watt SCR inverter type.

After you have study these plans a bit, you will understand what I am going to tell you. On the Charging Circuit Diagram. Up on the top left hand of the page is a SCR, This is not hooked up right. The positive + side of the battery is connected to the A of the SCR not the C. and the output is connected to the C not the A of the SCR. ( Just Reverse that )

Now every SCR once it is switched on will stay on until the power going through it is turned of. But we found out you can turn off a SCR without harming it, by shorting out C & A. Therefor you will need an on/ off reed switch for every SCR, ( Which we failed to show in the plans.) Also the delay switch part # 275-214, is no longer needed. It will be replaced by a special homemade Disk switch device. ( It is the only way to do it. they did not make relays to do what we need to do. ) The disk turns and is powered by a low amp DC motor. The disk has a total of 8 door reed switches rated at 2-30 amps. 4 of the reed switches is to turn on and off the Charging SCR on page 10 and the SCR's on page 12. The other 4 reed switches are to turn the 4 SCR's on and off on page 14-A, ( To alternate the current. ) Now looking at page 12, you will need 5- SPST reed relay switches for each SCR. ( rated at not under 1 amp. ) They will be turned on and off using the + side of battery # 4 reed door switch to turn off each SCR at the same time.

The reason we use SCR's in the first place is because they can transfer a very large amount of power and take very well. ( They take a licken and keep on ticken! ) Transistors or mosfets could be used to replace the SCR's and would be much easier to work with eliminating the need for a On/Off homemade disk. you could then use relays. and you would not need 5-SCR shut off relays. But you would have a much lower watt inverter. We are still working out some small bugs. If any of you out there have any good ideas please write me.

The Wheel/disk turns as does the strong permanent magnet, The reed switches do not. Turn wheel using a low power DC high eff. Or Free Energy motor connected to a speed control.



# 5000 WATT INVERTER Plans

# 579

Lets take a look at some conventional inverter sold today.

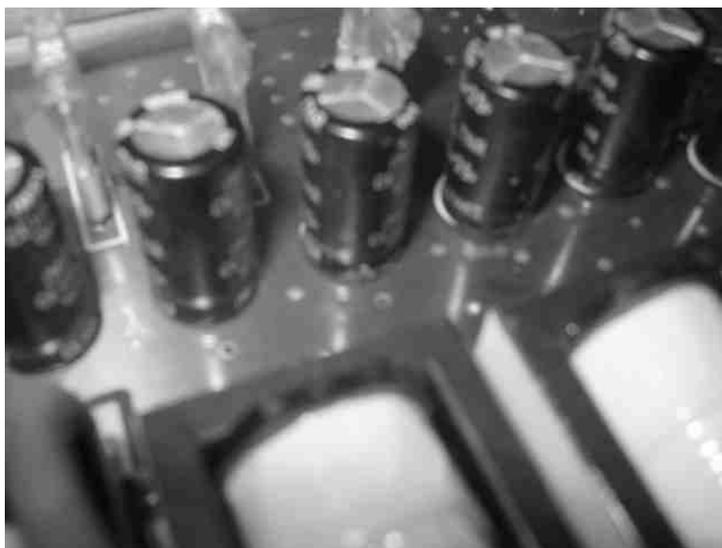
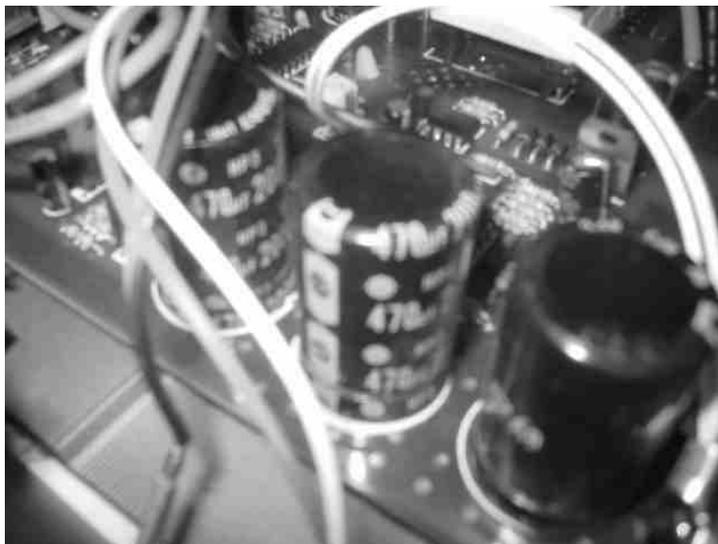


This is a 1000 watt modified sine wave inverter,  
built by the CHEROKEE Company

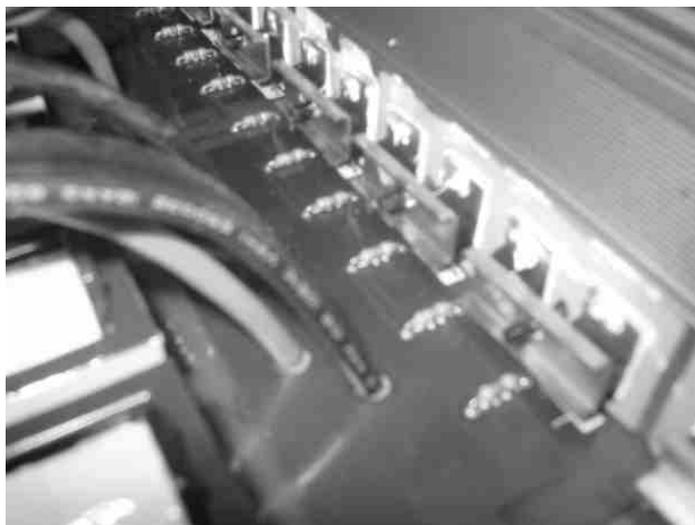


A view of the 1000 watt inverter opened. Shows SCR's,  
Transformers etc.

# 5000 WATT INVERTER Plans



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A 2500 watt inverter, by CHEROKEE



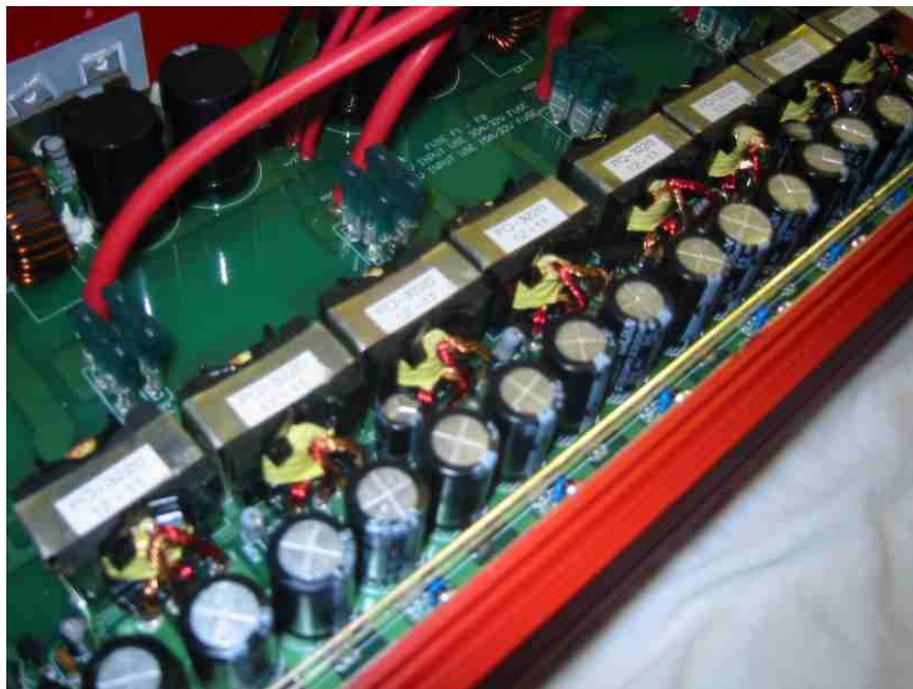
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Notice the very heavy wire they use to hook up from the inverter to the battery system. The heavy gauge wire allows for a greater amount of amperage to flow to system and out.

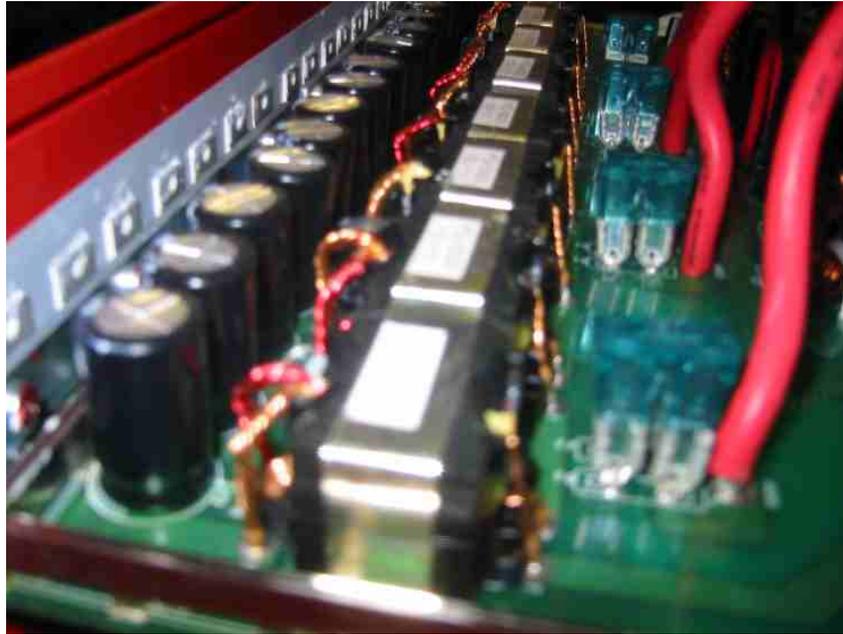
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Fuse Box for 12 vdc line