

Panacea-BOCAF On-Line University

The educational series covering clean energy technology, towards building our children a future.

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Overview

Quote- *You can't have over unity in a system of WASTE, you need first to MANAGE power by minimizing losses, managing power by the RV's HI efficiency will permit you to manage and transform an energy system towards OVER UNITY- Hector, edited by Ashtweth* -End quote.

The Roto Verter (RV) is originally the intellectual property of Hector D Perez Torres who has altruistically released the original information **open source**. The following RV method plus the additional open source circuits mentioned through the compilations in this document all fall under a statutory public copyright (Other Rights Apply). The RV is a scientific discovery which is covered by the publication statutory copyrights for 75 years.

The “Roto – conversion” effect is credited to its improvers and those who have done independent replications. The engineers mentioned throughout the compilations in this document have worked on the RV with the intent to keep the disclosures open source. For a current list and credits of the engineers and dates please refer to the compilations mentioned.

The RV technology is currently being used by engineers working in the open source energy communities **for energy saving applications** and towards “Zero point energy” or “Ethereic over unity engineering” research and development. The mainstream industry, faculties and the majority of the public are yet to be aware of the (critically needed) **RV's energy savings** and power management benefits.

The RV technology has already been confirmed by independent engineer's tests as being a superior energy saving device which **can save significant energy in standard electric motor applications**. The current applications which open source engineers are using the RV to save energy in include ¼ HP and 1HP+ **drills, lathes, punchers, rotary presses, planners, saws, cutters, air compressors, vacuums & others. All of which can be optimized to the lowest more effective power usage in RV mode.** Above one horse power applications can also be experimented with by using the RV with pulse width modulation or frequency drives.

An AC induction motor **that is RV power factor corrected** AND operated from a variable frequency power supply will have much better performance, and DUE TO the variable frequency supply, the OPERATOR will be able to tune the motor to the load more precisely.

Converting electric motors to run in RV mode also permits a practical and affordable **solar use** of the above mentioned applications. Currently to run a solar shop operating a ¼ or 1HP+ drill, lathe and others would not be economically feasible. Now depending on the specific load requirements, **an intermittently loaded drill running in RV mode could happily run on a 120 watt solar panel.**



Panacea-BOCAF's 50 hertz RV Drill with 120 watt solar panel pictured right

Existing $\frac{3}{4}$ horse power single phase drills and others can also be converted to RV mode for solar use simply by using a variac or transformers and capacitors.

Running $\frac{3}{4}$ or 1HP+ electric motors in RV mode is a superior energy saving incentive that's not currently utilized in mainstream industry applications or taught at the faculty level. The public must also help to enforce this energy saving standard to help save them money and their planet. Currently petitions to support the inventor and the 'no energy wastage RV standards' can be signed at [Link](#)

The Non profit organization Panacea-BOCAF intends to support open source engineers working with the RV and other suppressed clean energy technologies. These engineers all require grants, resources, faculty recognition and security. All this can be created in [Panacea's proposed granted research and development center](#). For those able to help this effort, please [contact us](#).

Description

Introduction to the RV by Jib

RV energy savings



Panacea's 50 hertz 5 HP Baldor motor modified to run in RV mode to give .8- 1.13 HP for energy saving applications.

Energy losses occur frequently in both three phase and single phase motors. This is due to a few factors; the first is as a result of an inherent design flaw in the induction motor referred to as the "slip" of the motor. The slip of the motor can be explained as the following. The motor's torque is developed from the interaction of currents flowing in the aluminum rotor bars and the copper stator's rotating magnetic field. The rotor follows behind the stator's rotating magnetic field.

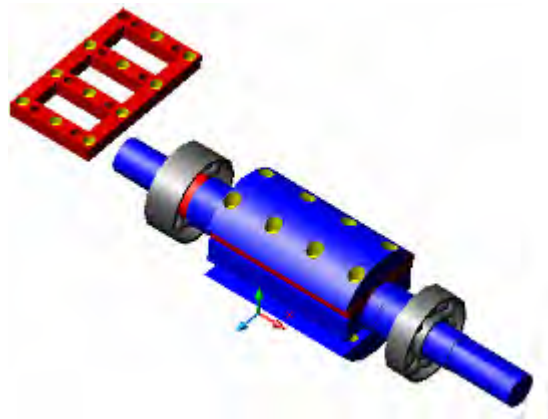


Cutaway of squirrel cage AC induction motor opened to show the stator and rotor construction, the shaft with bearings and the cooling fan. –[Source](#).

In actual operation, the rotor's speed **always lags** the rotating magnetic field's speed, allowing the rotor bars to cut magnetic lines of force and produce useful torque. **This speed difference is called the slip speed.** The Slip also increases with load and it is necessary for producing of torque- [Reference](#). For in depth explanation of the induction motor design [please consult this page](#).

An advanced design has been proposed by open source RV engineers. **Their open source design can eliminate the slip losses by creating a permanent magnet RV rotor.** This design is commonly referred to

as the “PMRV” PM being an acronym for “permanent magnet”, and “RV” being an acronym for “Roto - Verter”.



Raivo’s half moon design, further construction details can be found in [Dan’s RE-OU V6 E-book](#).

With the PM-RV, not only does this design mitigate the slip and rotor energy losses, it also allows for a magnet amplification effect which can lead to many other benefits. More details on these benefits can be found in the RE-OU E-book. Induction motors have other major components of loss; Iron loss, Copper loss, Frictional loss and Winding loss. All these losses add up to the total loss of the induction motor –[Reference](#).

Here is an off the shelf example of what COULD BE a PM RV waiting to happen. The following is taken [from this web site](#). This device is a Permanent Magnet Generator. Please email and check the specifications and what could be modified before purchase.



120/240 VAC 60HZ 3KW Utterpower PMG

Here is another [example of an efficient PM rotor](#), using a frequency drive; however these are not used in all prime movers and or as a generator. More information - [Permanent Magnet Synchronous Motor operation](#).

Electric motor energy losses also occur as a result of a poor [power factor](#) under loading conditions.

Most induction motor applications operate intermittently and do not constantly run a under full load. IE- the motor starts and stops frequently and is usually **only partially loaded, but full power is used up** and results in heat and electrical losses. There is no doubt that the basic concept of reducing the voltage on a motor which is operating at less than maximum efficiency can result in a reduction of the iron loss of the motor. **With a partially loaded motor, a reduction in the voltage applied to the motor will reduce the iron loss.** But what if we could do more? We can, and this is where RV mode comes into play.

Reducing the voltage on induction motors operating at less than full load reduces the wasted energy that's consumed. Also by adding in power factor correction with capacitors (tuning the RUN cap values to each individual load requirement) allows the motor to "synchronize" with the needs of the load. Then by adding in a frequency drive or pulse width modulation into the mix **an advanced power management (RV) configuration is attained.** Typically in engineering practice a similar process is used. This process runs three phase motors from single phase power and uses capacitors on the motors as an "add-a-phase" set up.

Running 3 PH motors from 1PH power via start and run capacitors is nothing new, however **RV-mode is not like the common "add-a-phase" setup**, but more related to **impedance matching** by **tuning** the capacitor values, voltage, frequency and pulse-width in advanced configurations. The RV principle is based on "matching the source to the needs of the load" [as first referenced by Nikola Tesla].

In a three phase RV motor example, the motor is run from a single phase power supply by using capacitors to generate the third phase. In a typical 60 hertz configuration, the motors windings are connected in series (to 480V high voltage mode), but the motor is driven from an 110V grid (operating at ¼ of the voltage). The motor will then run at a reduced HP capacity but this will be the most efficient and **the HP can be raised using a frequency drive.**

The HI impedance and 3rd phase generation creates a transformer a like operation where power is managed more effectively. Both single phase and three phase motors can be run in RV mode. However a single phase demands more capacitance to run in RV mode as it is a lower impedance than a normal 3PH motor.

Replication

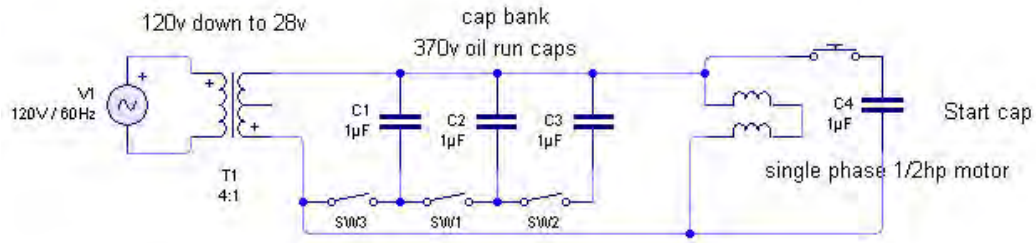
RV energy savings on single phase motors

Note you must remove the external fan on all RV conversions, this will create unwanted drag. The motor will not operate hot as it does not waste energy!

½ HP and ¾ HP single phase electric motors can be converted to run in RV mode to save energy. The principle for the single phase is the same as the three phase conversion. One winding is connected directly to mains and the second through the caps. The caps make sure that there will be ca 90-degree phase shift between the original input voltage and second winding voltage. The 90-degree windings will create a revolving magnetic field, which will start to "drag" the squirrel-cage rotor along.

For a 60/50 hertz single phase RV. You have two options; for 60 hertz, the first is to use a step down transformer from 120VAC to 28VAC. It will work with a de-rated HP initially. With 230VAC motors use 48-52VAC ratio. As it generates power factor correction to line across transformer you will then have the RV effect.

Credits go to Jason Beamish



A tested single phase RV schematic.

The second option is to use a variac on existing 1HP or $\frac{3}{4}$ Hp applications in place of the step down transformers. Panacea has tested this successfully on a $\frac{3}{4}$ HP Drill. The concept is to dial in a reduced voltage (do not start under load) on the variac and operate the drill as normal. If you can get to your drills RUN capacitor in your motor's housing, you can also attach a capacitor bank to your existing motors run cap and tune its value to find the optimal efficiency (**RV mode**).

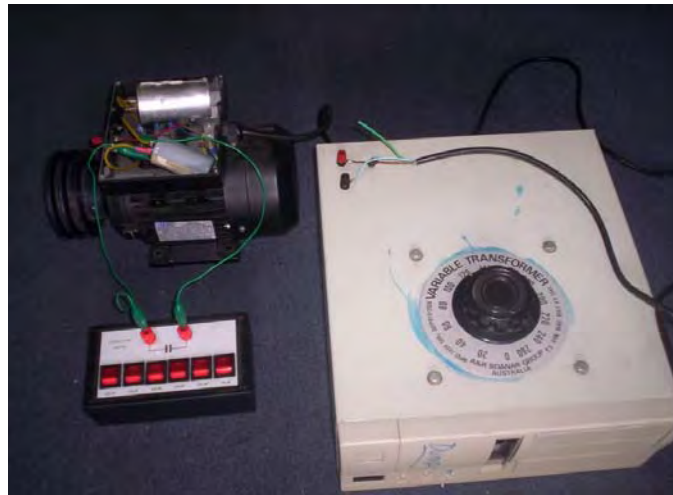


$\frac{3}{4}$ Hp single phase Drill

The above $\frac{3}{4}$ Hp drill was operated with a variac from the 50 hertz 240 mains power. 175 volts was dialed in from the variac. **This drill free wheeled on 1ACA compared to its normal operation of**

2.52ACA! The drill happily did the same load as it would on its full 240 volt operation. Depending on your individual load requirements you can dial in LESS or a bigger value through the variac. **In RV mode the RUN capacitor is tuned to the individual load needs, either by raising the RUN cap value or decreasing the value.**

Also single phase motors which operate with a belt and pulley can be effectively tuned and operated in RV mode to save energy and money. Note you will need bigger rated start and capacitors for single phase RV's. **Make sure you have a bigger the normal start capacitor or the Amp draw will over load the motor. This is to do with the impedance of a single phase compared to a 3 phase.**



Above is a single phase 1HP motor [left] with a variac [pictured right], and a binary switching capacitor bank in front [left] connected to the motors run capacitor.

You can experiment with this idea on your water pump and lathe etc. When experimenting with converting motors to run in RV mode. **It is essential to build your self a binary switching capacitor bank.** This will allow you to switch the RUN capacitor value at ease to find the optimal efficiency for the given load. It is advisable you build a binary switched bank and have values of 0.5 uf and 1uf. In the following example switches available to put in 0.5 uf steps.



The 0.5uF value was made from 4 x 2uF in series. The 1.0uF was made from 2 x 2uF in series. These can be made with reduced value range to keep the cost down, but can be paralleled with other caps to give fine tuning at a higher capacitance value. If a 20uF cap is hooked in parallel, then the box becomes a 20 to 51.5uF box.



Inside of the binary box



Values starting at 0.5uF [left] to 16uF [Right]

The above bank has .05, 1.0uF, 2.0uF, 4.0uF, 8.0uF and 16.0 uF. The cap switches have an ON/OFF switch. This way you can switch them in and or off to increase and or decrease the value. For example you can go from 0.5, and add 1.0, to go to 1.5 and so on. **It is recommended you have switches that can handle or are rated to stand back EMF! NEVER USE ELECTROLYTIC CAPS WHEN OPERATEING THE RV.** They should be oil-filled caps, with a high voltage rating.

Next generation ideas for an automatic electronic tuning capacitor bank

Here are some ideas for the construction of a smooth-switching cap box for simple, electronic tuning. The idea of making a binary cap box that can be adjusted by a simple turn of a knob, or automatically by the motor current is a good one, but there are a couple of things to bare in mind about it.

We are dealing with large inductance and voltage, so switching of the Caps needs to be very robust, and there should be no time when a cap is not connected (ie switching down from 8uF to 7.5uF should be smooth - no gap between). This tends to rule out using a binary sequence, unless you use some very fancy switching.

Instead look at using a heap of small value caps that are just added in parallel. Say use 20 x 0.5uF caps to make a 0-10uF box in 0.5uF steps. To switch the caps in, use cheap and simple relays. Use a couple of cascaded bar-graph chips to drive the relays, and you have a pretty simple voltage controlled cap box. Reasonably cheap as well since the caps and relays are common components. One can be made and designed to sense the value and automatically tune the values to the needs of the load.

RV energy savings on three phase motors

Note you must remove the external fan on all RV conversions, this will create unwanted drag. The motor will not operate hot as it does not waste energy!

Converting three phase motors to run RV mode gives you a VERY efficient electric motor modification available from off the shelf components. **Not only can the motor idle with efficiency not seen today from any other method**, but also in RV mode the motor will have **more efficient power on demand** by the capacitor tuning. Add the Frequency drive and you have the unique RV.



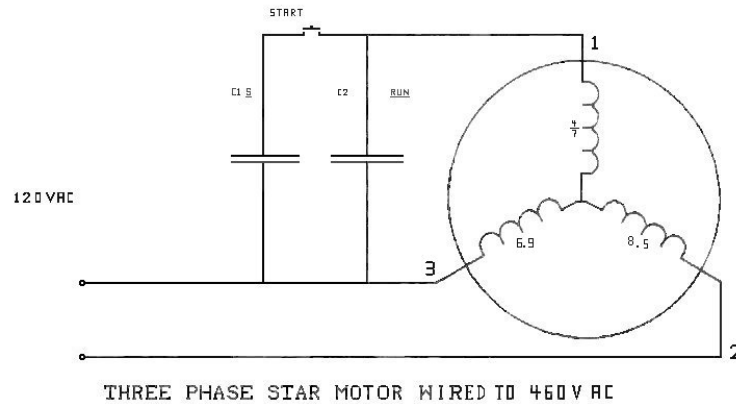
Above is Panacea's RV converted water pump with the external fan removed.

Before choosing an RV for your energy saving application, the following must be taking into account. If using 60 hertz 3 phase motors, you can use a 3HP motor or a 7.5 HP motor. If using a 3HP motor in RV

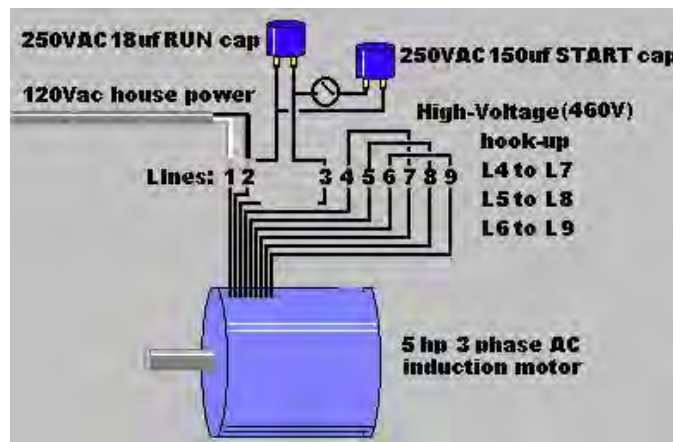
mode, it will give you by default around .5HP at the shaft. The 7.5 HP motors will give you around 1.8 HP at the shaft.

In 50 hertz motors either a 5HP or a 10HP motor can be used, and will give about .8 - 1.13+ at the shaft in RV mode. **This HP is not a fixed value as can be increased (at no loss at efficiency!).** This is done with a frequency drive. The following Video test was done using a frequency drive to increase the shaft power whilst preserving the efficiency. **Panacea-BOCAF Video- [Frequency drive test](#)**

The RV power output is usually about 1/4 to 1/5 of the rated one on the motor plate. So check what power you need (in kW or HP) and then take a 3PH motor 4-5 times 'stronger'. **Don't forget the SOLAR potential!** If you want to run it straight from the mains, then you need to select a motor with a voltage rating of about 2x that per winding (or 4x in WYE connected). Example: if you have 110V 60Hz mains, take a 230/460V dual winding 3 or 7.5HP 60Hz motor; connect windings in series and in WYE. ($460/4 = 115 =$ is close to mains) .



The RV 60 hertz "Y" schematic with a start and run Cap connection



Another schematic describing the 60 hertz model

Example2: if you have 230V 50Hz mains, take a dual winding 380/415 or a 400/690V 50Hz motor, and connect in WYE ($800/4 = 200 =$ fairly close to mains - better is 220V) Alternatively, if you feed the motor from an inverter, you can then modify the inverter to set the correct voltage output for your RV motor (is relatively easy to do within a certain range). In terms of speed, check the desired speed of your tool. If you can find a motor that is close to that speed, use that one.

The standard motor speeds are:

for 50Hz: 3000, 1500, 1000, 750 rpm (=2-4-6-8 poles)

for 60Hz: 3600, 1800, 1200, 900 rpm

(in fact about 3-5% less than that because of slip)

Speeds of 3000/3600 and 1500/1800 are the most common. If you do not have a good match, you can use a reduction gear or pulley (those have energy losses), you can also modify your inverter to alter the frequency, then no pulleys or gears are needed. For more information on the RV's frequency adjustable method please consult [this compilation](#) and search for frequency drives in the index.

Running motors from 230VAC wired to 400VAC is also quite practical in terms of energy savings, something interesting happens when you decrease the input voltage, while maintaining the torque and optimal run capacitor. The amperage remains roughly the same (depending on circumstances), and you wonder where the energy was lost in higher voltage drive mode.



Panacea's modified Floor Drill press replaced with an RV motor. This RV converted Drill **idles on .38ACA!**

In the above drill we used a 5HP dual winding 380/415 50 hertz motor. This was modified to run in RV mode (wired for high voltage) with a start and run capacitor connected in Y. This gives about $\frac{3}{4}$ HP at the shaft. Link to this baldor motor is http://www.baldor.com.au/product_view.php?PROD_ID=31

We found that the idle savings add up **significantly** as this drill turns around on 380mA AC, **if you compare a normal ¾ drill used all day intermittently in an industrial work place this is quiet a saving. The savings are very sobering if you add up the drills energy bill annually.** Also power factor correcting or tuning with the caps also gave the motor **more efficient power on demand when loaded.**

Below is an example for the 4 and 5.5KW **50 hertz versions**, which is the best range. Type numbers in bold at the [Link](#) to bring up more specifications.

4KW 2900 RPM **EMM3663-55**

4KW 1450 RPM **EMM3665-58**

4KW 960 RPM **EMM3768-55**

5.5KW 2900 RPM **EMM3769-55**

5.5KW 1450 RPM **EMM3770-55**

EMM3663-55 4KW-50Hz - rated 415V in Delta

- so each winding is rated 415V

- if you run this as PM(prime mover) in delta, you need to feed it with about 100-115V

- if you run this as PM in Y, you need to feed it with about 205-230V

Baldor motor M3613T-50

* Is a dual coil motor 12-lead, 5HP, 220/380/440V, 50Hz, 85% eff.

* is not a common motor in the 50Hz world (EU, AU)

* can be wired in many ways

60 Hertz RV

This brings us to the most efficient RV motor in the world. The recommended RV prime mover for energy savings is in the 60 Hertz range. If you are in a country that uses a 50 hertz grid why not go **solar** and use an inverter? **The savings will add up.** Best motor performance tested so far resulted with a 60 hertz 230/460 VAC 7.5HP 3450- or 1725 RPM 3PH Baldor motor, 184 TCH frame (with removable external fan) Specifications: Baldor motor EM3770T.

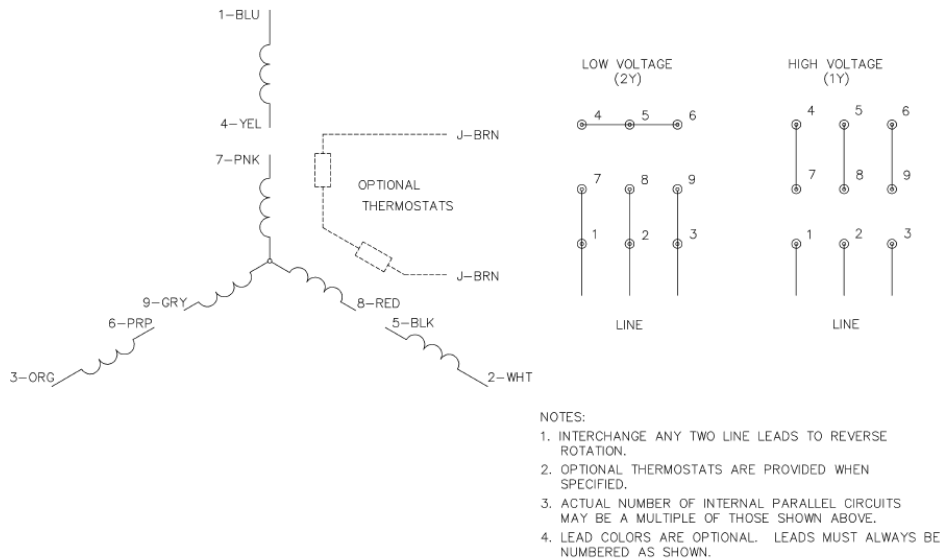


Panacea's Baldor motor EM3770T used for the RV Prime mover

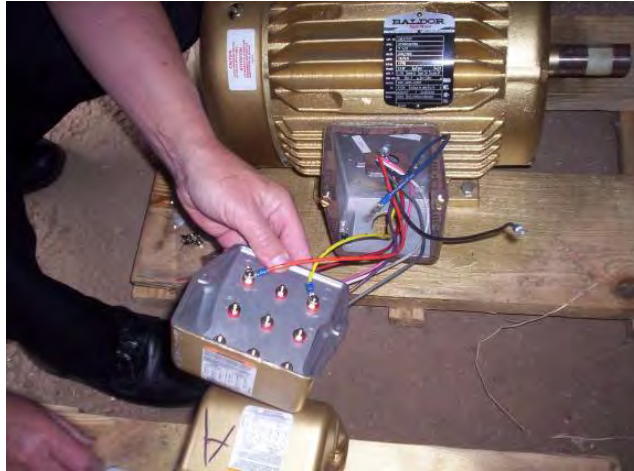
The above 7.5 HP 60 hertz motor was wired to its highest-voltage circuit possible (a 460V input) which gives you a high impedance, and draw as little current as possible. This motor will give you around 1.8HP by default for power on demand applications. **This motor was run from an inverter and returned an idle draw of 5.5 DCA at 12VDC which equals 66 watts.** It is estimated that this motor is able to deliver 94% plus efficiency when tuned with capacitors to the needs of the load. More HP is available from adjusting the Freq or voltage.

The starting cap in the 60 hertz example is 100 to 200uF, the running cap is from 7 to 40uF (370V oil caps). The starting cap is to give a boost from 0. Big motors require it to acquire torque to move the rotor .The run capacitor is chosen as to maintain best 120 degree rotation [efficiency] within the 3PH windings under the intended target load.

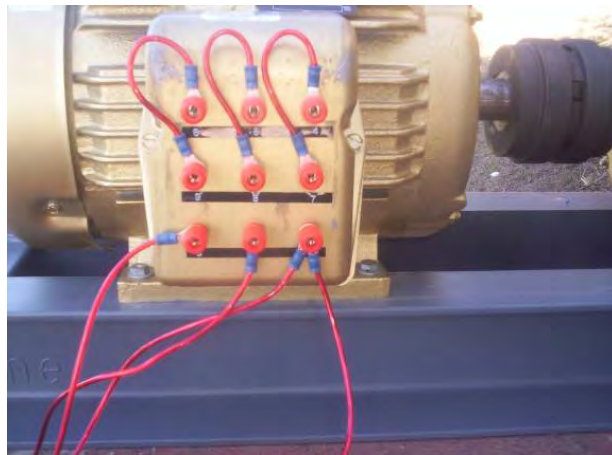
Make up for an easier configuration a clear definition of values that the motors face plate. The Junction box is drilled and the values are marked and numbered for identifying Y or Delta wiring as per the following schematic.



Wiring diagram for Baldor motor EM3770T



Junction box



Finished number labeled plate for an easy Y configuration

Part of configuring your motor to run in RV mode involves reducing the friction of the motor by re greasing the bearings. This will improve efficiency. One of best grease awakens is transmission fluid. This needs to be applied to RV motor bearings as with time & storage the normal motors grease goes to sleep (turning to WAX) and literally becomes a "DRAG" in all sense.

One solution is washing the bearings in transmission fluid and then reviving and re greasing them with low friction lube. There's also a brilliant alternative available in automotive applications already called Molybdenum- disulfide. Check the link for how it works this would be brilliant to use for the RV bearings. [Link.](#)

Another option is to use carburetor cleaner spray. Spray inside the bearings to wash out all of the packed grease. Then re apply low friction lube on the bearing. **Note all motors must have their external fan removed.** Since the motor is running on a reduced voltage it will run **cold**. The Fan therefore is a UN needed air drag.

In summery, the RV can be applied to run more efficiently any **Drill, lathe, puncher, rotary press, planner, saw, cutter, air compressor, vacuums & others** which all can be optimized to lowest more effective power usage in RV mode. Plus the RV allows practical solar use of these applications. For examples of energy saving RV devices and extra ideas please [consult this compilation](#).

Centrifugal switch setup by Ed

You just need to order one with the right RPM and shaft size. A centrifugal switch setup can be obtained from Torq corp. The switch PN# is S-7001 and the rotor PN# C-2108. Then mounted it on a 3hp 1725rpm 3ph motor set up in RV mode.



I mounted it where the fan normally goes. The rotor element was loose on the spline shaft so i used some heat shrink over the shaft and then used a socket and hammer to install the rotor. For this motor i use around 10uf for the run cap and 100uf as the start cap. For a low tech solution it works amazingly well. The start cap switch breaks at around 1500rpm and then on shut down the switch makes at around 200rpm. Switching the start cap back in at 200rpm didn't load the motor at al. The motor at 120vac is running on 24w at a PF of .92.

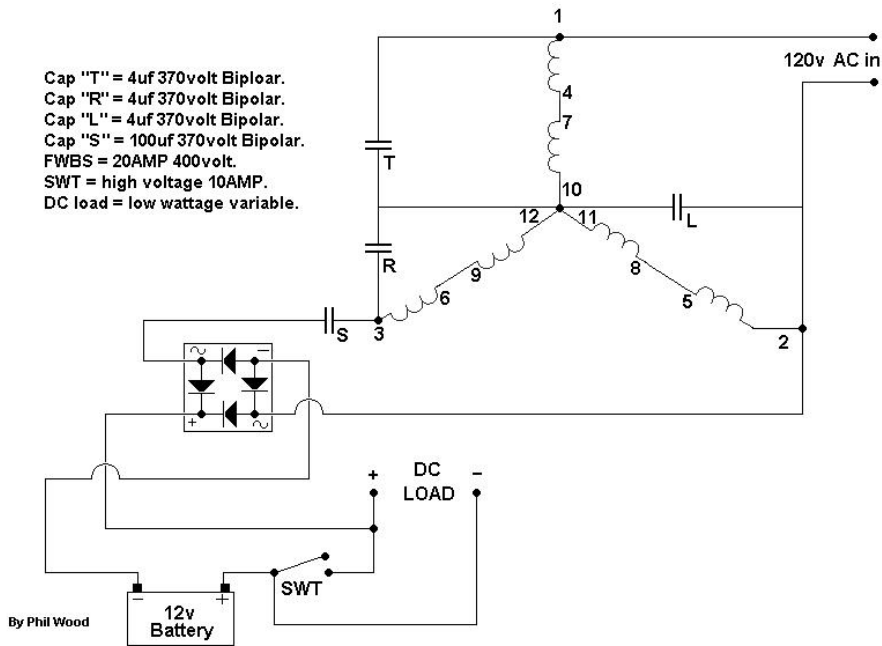
Energy saving circuits and configurations for the Prime mover

The following circuits are credited to Phil wood. **Phil has advanced the open source RV energy saving circuits** and made them practical for every day use.

BCSRC -Battery Charge Start Resonance Collector RV

In the following schematic Phil shows the same example of a 240 volt Prime Mover motor. This circuit has an automated start-up and provides an extra DC output which can be used to power an additional load.

Battery Charge Start Resonance Collector



The circuit operation consists of the above mentioned components where the main driving coils in a 3phase motor are also tuned into a resonance condition.

This is achieved by connecting between 2uf and 4uf capacitors across each coil winding. The Starting capacitor "S" is engaged by closing the switch thus placing the battery in the circuit as too receive a fast charge from the starting current, but provide the necessary resistance too allow cap "S" too operate correctly.

Once the motor starts the switch must be immediately opened where a high resistive load is now operating in the loop.

With the battery also staying in the loop the resistive load is now in control of adjusting the phase angle of the resonance windings in the motor.

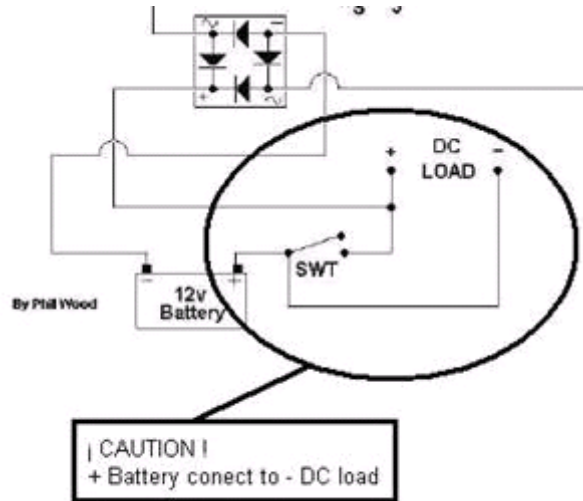
Any resistive load places a gentle charge on the battery at all times

The battery MUST NOT be running an inverter that is also connected to the motor unless it utilizes a step up transformer too provide an isolation from its main source.

This circuit has been operated on a 5Hsp 3phase Baldors motor where the energy input is 26.4 watts whilst running on 240volts 50HTZ.

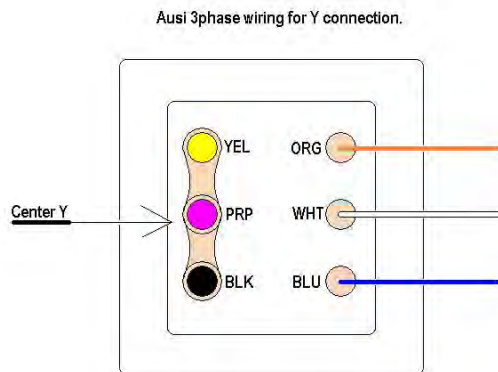
Further improvements are now expected with changes in capacitance values and by resistive load adjustments on the output.

Note from first glance the circuit may appear to be wired wrong



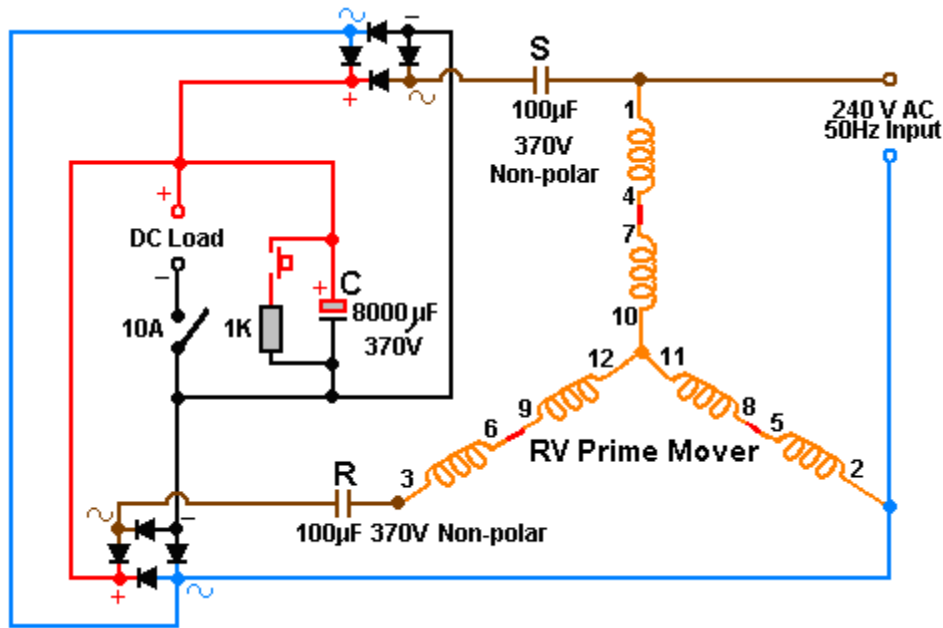
The switch is just for starting and it puts the battery in the circuit to charge and stabilize the cap, while bypassing the DC load, then after start the switch is opened and the battery is in series with the DC load.

Copy and enlarge for further detail. The instructions are to try 20UF caps on all phases for the 120volts 60 hertz motors. Note you may need to do some digging to find the centre Y in some motors. Australian 50 hertz 240 volt motors are already setup for this configuration without having to hack into the motor. All you do is connect the links as per this diagram.



Color/Number codes are: 1), Blue 2), white 3), orange 4), yellow 5), black 6), purple

Another example



Advice is to use a 20 amp 400 volt rated diode bridge for the output and a capacitor rated between 4000 to 8000 microfarads of 370 volts. The ON/OFF switch on the DC output should be at 10 amp 250 volt AC. **The charging capacitor marked "C" is required to be fully discharged before the motor is started.** This is done by pressing the press-button switch to connect the 1K resistor across the capacitor to discharge it fully.

Or the press-button switch and resistor can be omitted and the switch to the DC load closed before applying the AC input. In this scenario the switch is required to be opened and then the AC connected. In the starting sequence both the capacitor "S" and capacitor "R" function at their full potential until the capacitor "C" begins to charge.

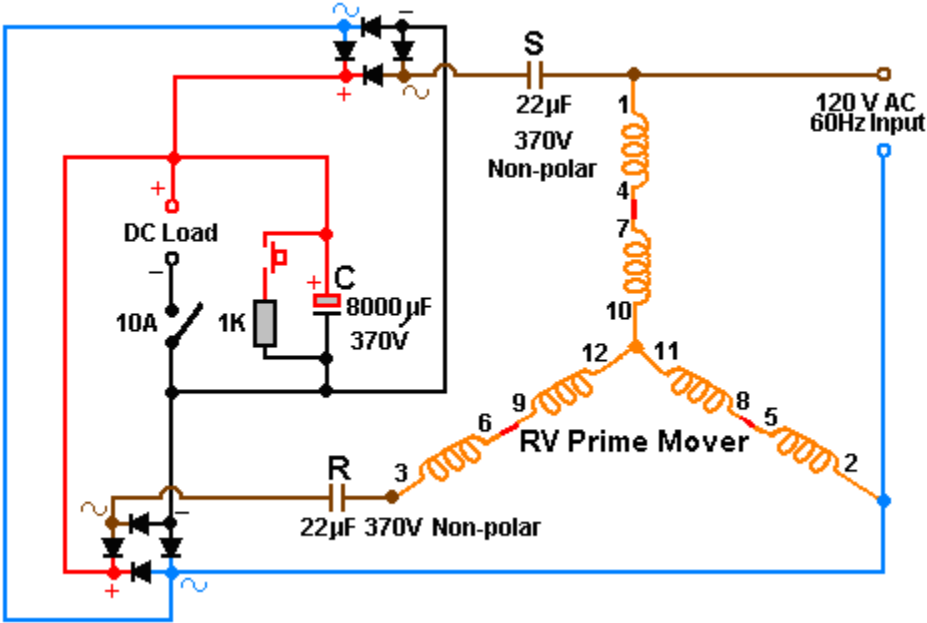
As capacitor "C" goes through a charging phase, there is an increase in resistance to capacitors "R" and "S" and their potential capacitance becomes less, this automatically follows the capacitance curve required for a proper AC motor operation at start-up. After a run time of few seconds, the output switch can be operated and a DC load can then be connected. **You must tune for the best efficiency by varying or tuning the resistance of the Dc load.** This will ensure that both of the capacitors "R" and "S" operate at a potentially lower capacitance value.

This circuit is designed to capture the energy which is normally wasted in an AC motor when started. This energy is collected in the output capacitor "C". This circuit it enables you also to power a DC load for free and to keep capacitors "R" and "S" in an efficient operating state.

You should experiment with the DC loads resistance to find the best value which will allow an automatic operation of the circuit. **Keep this value as a permanent part of the circuit,** and then the switch can be left on when the motor is started, and can be omitted entirely. If you leave the switch on at start up, the "C" cap value can be lower if the applied DC load resistance is high enough to allow the cap to go

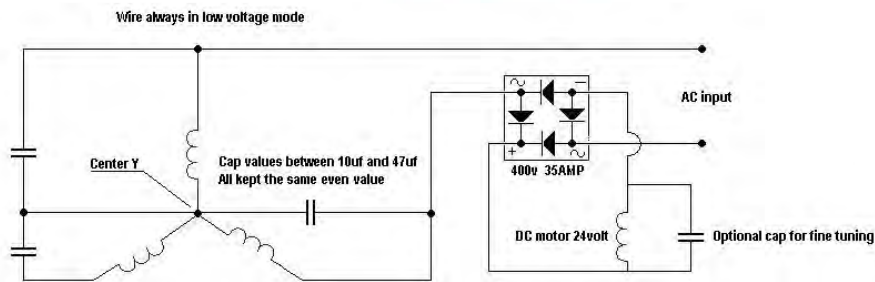
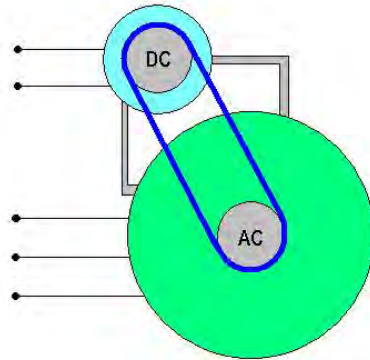
through its phase shift. The capacitor values shown were the ones which Phil had found worked the best for his motor; **EVERY MOTOR is different and will perform differently.**

With the following 60 hertz motor schematic, different capacitors values must be experimented with for a 120 Volt AC operation. The following values are only suggested as a starting point.



This example of a 120 V AC motor runs smoothly and quietly and draws only 20 watts of input power.

DC "Humping" AC circuit



By Phil Wood

The following is a picture of Phil's 3phase RV with a 12volt DC motor coupled on top. This circuit needs no start cap and gives an immediate start up. When the 3phase is heavily loaded the slip causes the DC motor too work harder which then pulls the 3phase back up to speed. After running many tests with this, the results show it is highly efficient with better "power on demand" characteristics. Also the permanent magnet DC motor/generator can be loaded with an additional load.



Above is Phil's RV with a Dc motor coupled on top. Pictured right is a frequency driven inverter.

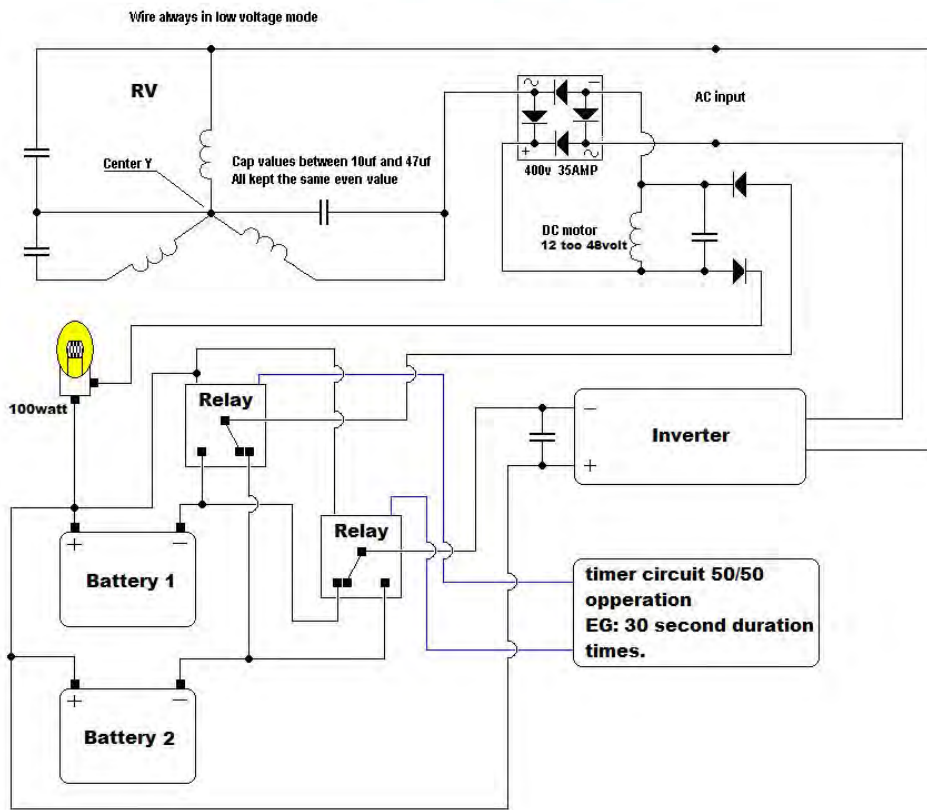
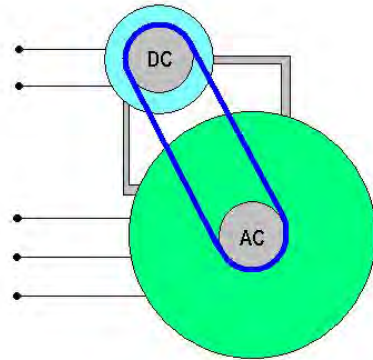
Both motors operate cold when running, note a chain drive is too noisy, the advice is to go belt driven. If you run a 3phase motor in RV mode with the BCSRC circuit above you won't be disappointed.

Note, the DC motor does not see 120volts but only the voltage it is rated for. Without getting complicated it is all just a resistance thing with the differential between the DC and AC motor. You will also notice that the current draw is much less than normal RV mode and there is much more torque.

If you want too also use the PM (permanent magnet) Dc motor as a generator, it can be done see below for schematic. All you do is connect your next load, and let's say it is light bulbs across the DC motor. You will see how a tiny inverter will now start the PM and the current will fall way lower than before, and you can generate excess power from the DC motor with out any complications.

Additional ideas

The following diagram is of a DC motor working in conjunction with the AC motor. Ideally it would be a better commercial product if the 3phase motors had an in-built DC type motor within the unit its self. This does not need too have any commutator and could all be a solid state operation.



By Phil Wood

Phil states- I [Phil] have run 2 X 3phase motors myself using the DC motor circuit and they operate perfectly. I have used a 12volt golf buggy cart motor and also a 36volt DC motor that I believe could have been off an electric scooter.

To give you an idea of the types of resistance's of a DC motor that can be used with the RV, the 12volt motor is 0.9ohms. The 36volt motor is 2.8ohms. Because I have spent many years inventing circuitry for DC motors improving there efficiency I have also learnt ways too change their torque and temperature operation. Virtually all DC motors can be adjusted so they run cooler, and this we do by loosening the bolts that run through the motor and retard the case that supports the permanent magnets.

The shaft is too run in a clockwise direction, we slacken the through bolts and turn the magnet casing anti-clockwise a couple degrees or at least until it can't turn any further. Normally this is where the long through bolts that are in the elongated slot between the magnets pull up against one side of the magnets .Once this is done, the DC motor has now got much more torque and will operate far cooler than ever before.

It does slow the RPM down somewhat running on its own, but has no effect with the operation of the RV, as a natural balance takes place with RPM and voltage where both the RV and DC motor automatically stay in tune. It may be wise too put a conventional scientific explanation why the 2 motors run together in harmony, and why the current usage now drops down further in this operation, as I have a complete different understanding of energy that seems too confuse people further. LOL.

Now close looping with the DC output too an inverter is a big NO. But there is a YES. First of all I will explain as best as I can why. Electrons have a form of memory where they do not like to be sent back to the original source. To close loop with the DC motor in this instance back into the inverter will blow the inverter out immediately. There are a number of ways too get around this, where we can either use an isolation transformer on the RV, or send the energy back into a different source, so there is no reference.

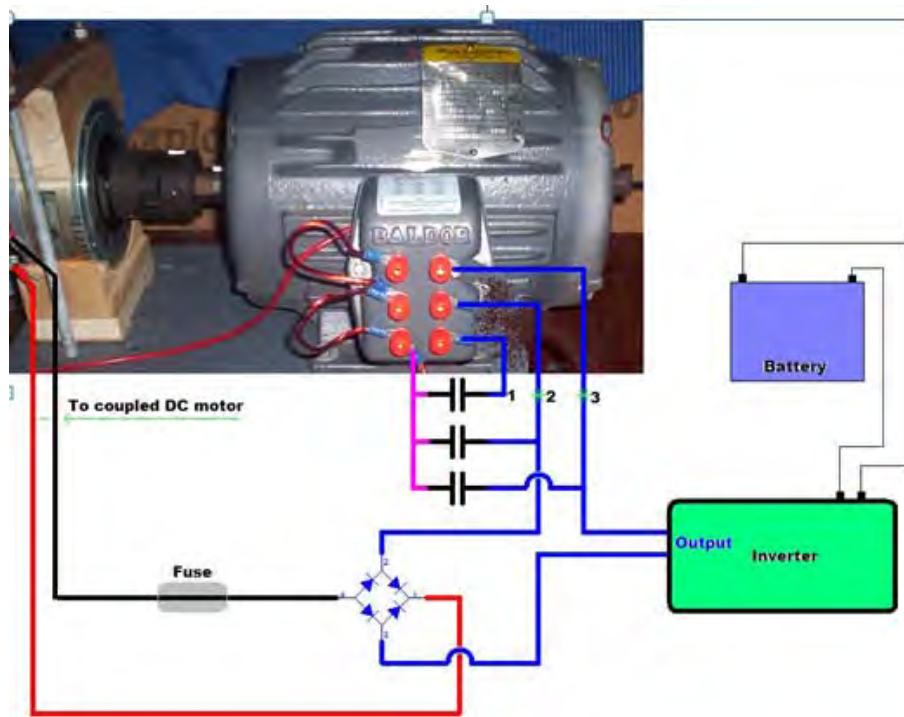
Another thing I can assure you of from my experience is that you can also get runaway in this **closed loop sequence**. This is where the returning energy lifts the battery voltage by 2 or 3 volts which in turn lifts the output of the inverter by many more volts which in turn now lifts the returning energy by many more volts until where the battery is unable too hold a steady voltage being over charged. This is where something will blow.

This is where we use 2 batteries where they alternate, so one is running the load while the generated output is charging the other battery. After a short period of time we then switch in the charged battery to work, and switch in the other battery too now be charged. So with a simple relay circuit, the DC motor can be charging a second battery for some time, then this battery can latter be switched in too now run the inverter.

So how do we regulate the charging of a battery where the voltage could be anything far higher than 14volts? This is as per the circuit described where in series too the charging battery we connect a light bulb of what ever wattage we wish too use for charging. A standard voltage regulator wastes the excess voltage as heat, so the next best thing is too dump the excess voltage in the form of heat which also is producing light.

When you are switching between batteries in this manor, it is essential too have a capacitor of a large value connected too the input power of the inverter. This is because there is a momentary delay as the relays switch, and the inverter requires a steady voltage. I hope this explains a few things so people can

understand any safety issues and prevent damaging equipment like an inverter. I have also added the relay circuit [above] and am hoping there are no mistakes.



Another DC humping AC schematic, here the RV prime mover is connected to a PMI permanent magnet Dc generator.

DC humping AC circuit for a Water Pump.

Each phase is independently cap tuned and the DC motor is wired in series with the input through a FWBR and the DC motor is belt coupled to the 3phase motor shaft with your pump. This starts the RV without requiring a start cap, and the DC motor will partly take over keeping the RPM right if an external load is applied. So if your pump is intermittent it will not bog down the RV. The other effects that I found, is loading the shaft with a particular force drops the current when the correct cap values are used.

Validation

Many engineers along with Panacea-BOCAF have validated the RV's energy saving method and used the RV in common applications. Here is a list of Panacea's replication videos.

[Video-Energy saving method](#)

[Video-Frequency drive test](#)

[RV energy savings R and D compilation](#)

Coming soon – A mainstream faculty's dyno test report of the RV's shaft power

Related Patents and information

RV is open source!

Faculty information

The Roto Verter stator windings are wired in Y configuration and are having 3 terminals. We are feeding 2 of these directly with some sinusoidal voltage, which creates some current in 2 of the stator coils (they are connected in series in case of Y-connection). This current in these coils will lag the applied voltage by 90 degrees due to the inductive nature of these windings. The third terminal is fed through a capacitor.

This compensates the lagging of current (current which is going through a capacitor will be leading the applied voltage for 90 degrees) in the third stator coil. Hence then there will a rotating magnetic field created in the stator windings, which will induce the current in initially static squirrel cage rotor windings.

The squirrel cage can actually be considered as a transformer secondary winding, which is in "shorted" state when the rotor is just starting its rotation. And what happens when you short a transformer? Its primary virtual inductance (and thus the total impedance) decreases very much and lot of current will be needed from the power source. Point is that to maintain this rotating magnetic field in the stator when the rotor is just accelerating, we have to supply a lot of current to ALL of the stator windings.

That's why we need much bigger capacity for the start cap - $X_c = 1/(2 * \pi * f * C)$ - we are having constant frequency and in order to pass more current to the third coil also we need to decrease the reactive resistance of the capacitor, thus we need to increase the capacitor's value. So we will use the start cap that is able to pass almost similar amount of current to the third stator coil also.

When the rotor comes up to speed, the rotating magnetic field of the stator will cut less and less. The squirrel-cage windings and the virtual transformer shorting effect decreases and thus the needed current from the power source also decreases. Now when we still have the big start cap in place, then it's X_c (reactive capacitance) will be so small when compared with the third stator winding's X_L (reactive inductance $X_L = 2 * \pi * f * L$), that the total current in the third winding will be mostly determined by this X_L value and thus the current in first two stator coils and third stator coil will be almost in the same phase, thus killing the rotating magnetic field that should be produced by the stator for normal operation for this kind of motor.

Now we need to disconnect the start cap and keep only the much smaller run cap, which will restore the properly rotating field in the stator (the cap creates the needed phase shift for current in the third winding). This advice is valid only for the prime mover in UNLOADED CASE (for the case when we do not need to run big loads with it). The values of the capacitors and components are specific to the motor size used.

Faculty Tests By scianto_scicisto

http://filmoj.info/laboratorio/esploroj/rv/rv_01/

In this directory you can find some setups I tested with rotoverter and bulbs as loads (0.8 kW and 2.2 kW motors). Unfortunately I lost the spread sheet with hundreds of tests documented, so you can see only pictures and diagrams. I remember the best power in to power out ratio was around 0.6.

In this direcotry: http://filmoj.info/laboratorio/esploroj/rv/rv_02/

You can find another set of tests, several hundred of them, with rotoverter and similar setups (two 5.5 kW motors). The spread sheet containing all the results is this file "rv_02.ods".

In this directory there are many other tests with loads but with 3 phase powering:

http://filmoj.info/laboratorio/esploroj/rv/rv_3ph/

The spread sheet file is "rv_3ph.ods".

In other directories of my lab tests / experiments, starting from the parent:<http://filmoj.info/laboratorio/esploroj/rv/>

You can find many more results of different setups including car alternators, PM alternators, PM motors, DC motors.

Please consult the [RV energy savings R and D compilation](#)

Recommended faculty reading

How to Run Three-Phase Motors on Single-Phase Power

Energy Saving Research links

Many compilations are listed on this page -<http://www.panacea-bocaf.org/rotoverter.htm>

<http://peswiki.com/index.php/Directory:Rotoverter>

Technical support groups

<http://groups.yahoo.com/group/EVGRAY/>

<http://tech.groups.yahoo.com/group/RVreplication/>

Videos

[Rotoverter Energy saving method](#)

[Roto verter inspired frequency driven alternator test](#)

Parts supplies

USA- <http://www.surpluscenter.com/>

Check for motors on EBAY

'Over unity' Research and development

Quote -I applaud Hector for encouraging people to run these experiments, ***The Reactive Power circulating in the LC tank circuits can be converted to Real Power, using methods discovered by Tesla-*** [Peter Lindemann](#). End quote.

Overview

Engineers and researchers reading this material for the first time are at an advantage. The following documented work compiled on this subject has been done at the sacrifice of time, money and hard work from the RV's open source engineering communities. We all still continue to contribute and perfect the technology with **the common goal to bring the world off the shelf open source free energy technology.**

Conventionally the RV produces what is called "reactive power" which is measured as "VAR's. This is also referred to as electrical "resonance". Reactive power and or electrical resonance is typically produced by an Inductor and a capacitor or "LC". Classical AC theory states that normally VAR (voltage amps reactive) cannot be translated into useable power and remain as "virtual power". For a complete tutorial of resonance and how it reacts via COINVENTIONAL protocol [please consult this page](#). Also you can see a short [reactive power flash tutorial](#).

The extraction of this typically unobtainable circulating power into a usable one (from VAR's to watts) is what the RV engineering is all about. Researchers such as Nikola Tesla and [Eric Dollard](#) have also put forward methods which can be applied to extract this power through unique "RLC" circuits.

Getting one of these systems to "loop" or "run itself and a load" is based on the processes involved in converting some of the captured Reactive Power back into a usable form of energy. The first method was developed by Eric Dollard, and involves using a complex LCR network to phase-shift the current and voltage back into alignment. No one except Eric has accomplished this, and the method remains proprietary. The second method involves using the Reactive Power produced by the RV method as the first stage in a circuit that accomplishes Tesla's "Method of Conversion" for the production of Radiant Energy

Hectors open source RV circuits are based on an understanding that this reactive power behaves as radio frequency. This Radio Frequency analogy subscribes to the understanding that RF is radiant energy or "Ethereic energy" in origin. All the open source extraction circuit ideas to date minus Eric's and Tesla's are based on tuning or transforming this reactive power from this non conventional protocol. This theory of RF = radiant energy and how to extract it is described in various research compilations and

manuals as a unique “jargon”. The panacea university is fully aware that science is a discipline. Its various parts include:

- 1) The proposal of a hypothesis. This proposal must be defined in a language of commonly used terms whose definitions are shared by everybody.
- 2) An experiment is then conducted, based on the hypothesis, and the results of this experiment are PUBLISHED.
- 3) Dis-interested third parties read this account, and then become interested in the experiment.
- 4) Some of these third parties then try to duplicate the experiment, and PUBLISH their experimental results, as well.

The Panacea University has the full intent to clarify the information into such a standard. As we are a long way to go before mainstream ethos understands and recognizes etheric energy engineering even though Nikola Tesla described it in the 1800's! What you will discover in this document is the progress to date of assimilating this research and development into this standard.

So far the RV engineers have had to work with out the use of adequate equipment and on a shoe string budget. This unfortunately has held back this progress. This document will be updated with faculty information and independent validation, please check back for updates on the Panacea university site.

Description



Hectors originally inspired VAR or reactive power measurements from his RV

Above is Hectors original RV prototype. He is using dual winding 3HP three phase induction motors. The left motor is wired for high voltage and used as the prime mover. The right motor is wired for low voltage and is used as the generator to create “reactive power”. The generators current is 5.1A. As the load is connected in delta, the VIRTUAL power (PF=0. Circulating in the circuit is $203 * 5.1 * 1.732 = 1793\text{VAR}$. The idea is now to transfer the potential (at the voltage node) to a capacitor that is discharged to transfer its POWER to a PF=1 energy mode. As such you 'plug' more power out than is being drawn from the prime mover.

There are 3 ways of creating reactive power through the RV circuit. The first is by using a prime mover and an identical motor coupled as a generator. The second is to use the RV prime mover only and create the reactive power through the motors RUN capacitor. The third is by a solid state version called the [Trans-Verter](#).

There are various circuits so far being used to extract the power. These include Phil’s resonance collector, Raivo’s circuits, David Kou’s Deliverance circuits and the original looped extraction concept. All these circuits can be found in greater detail in the [Advanced RV research and development compilation](#).

The RV is also considered the perfect Prime mover to experiment with other over unity generators. Experimental ideas so far include coupling the RV to drive the Muller generator and the Ecklin brown generator. Full details and ideas are contained in the Advanced RV compilations mentioned above.

Replication

This guide will describe the recommended RV motor for this application. This is Baldor motor “EM3770T”. This is a 7.5 horse power 230/460 volts 60 Hz 3-phase motor.

Generic specifications for other motors are:

60 Hertz

- Prime mover 230/460 3600rpm 3-7.5 HP, wired for highest voltage (460V 'Y')
apply single-phase 110V.

- Alternator 3600rpm or lower, wired for lowest voltage (230V)

50 hertz

EU: - WYE/Delta motors 230/400VAC 50Hz; 5 to 10 HP

- Prime mover 3000rpm, wired for highest voltage ('Y') Apply single-phase 100-120VAC (through variac or transformer)

- Alternator 3000rpm or lower, wired for lowest voltage (in DELTA)

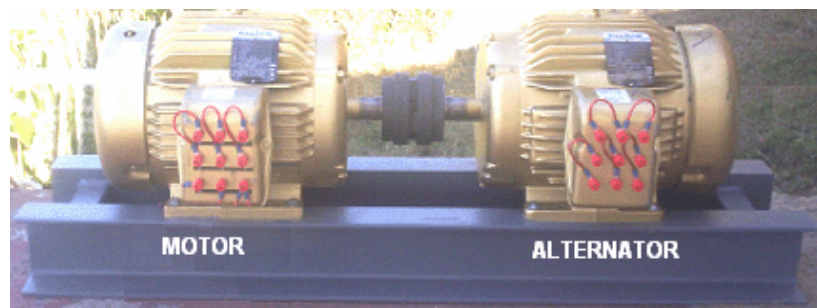
If you are not able to source the Baldor motor, ANY 7.5 or 3HP horse power dual winding 230/460 motor will do in 60 hertz. If on a 50 hertz grid, you can still use 60hertz motors through a battery and an inverter. It is recommended you use a Xantrex **modified sine wave** 1200 watt inverter through a solar panel. If not able to source the Xantrex, any low idle draw 1200 watt modified sine wave inverter should do.

After acquiring your motors there are first few cosmetic modifications that needs to be done to your motors prior to mounting and coupling them. First you must like in the energy saving method **REMOVE THE EXTURNAL FAN**. Then you must choose one of your two motors to act as your alternator. Then this motors housing screws are removed and the housing face plate & rotor are inverted or flipped around the other side.



Panacea's motor being modified

This is so both motors junction boxes face the front when the RV motor and alternator are coupled and so both their shafts face each other. This is also done particularly so it makes the system easier to work on when you're testing different configurations.

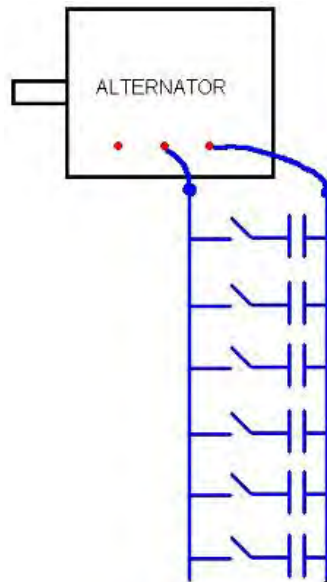


Panacea's RV replication- pictured here are two Baldor EM3770T motors being used as an RV motor/generator

Panacea-BOCAF has documented laymen's construction details covering the mounting these motors plus more [on this page](#). That page will also describe operating instructions and trouble shooting.

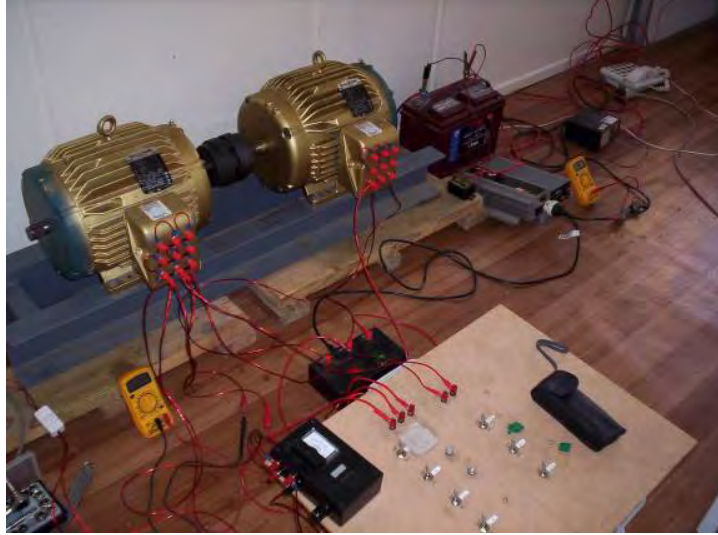
The induction motor above labeled as the alternator is working as a generator. The motor has stator windings and laminations. If the iron laminations are de-magnetized, the machine will NOT start to generate electricity if turned. It takes a small amount of residual magnetism in the iron to get the process going when the capacitors are connected to the alternator. If it doesn't start spontaneously, you can quickly connect and disconnect a battery across one of the windings. This will impose a magnetic field in the system and get the oscillations started. After that, it keeps going on its own. More information on how and why induction motors can become generators can be found on [this web page](#).

After mounting your motors as above, then connect your binary switched capacitors bank to the alternator.



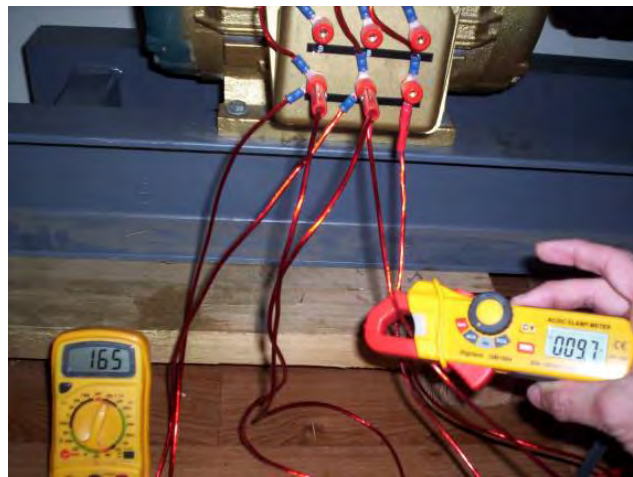
NOTE WELL- STRONG safety must be obeyed. Put insulation around the capacitor banks switches (the metal handle). When driving your RV it can reach very high voltage, even use good rubber shoes and isolating thin gloves (the medical type).

Start the prime mover with out the caps switched on the alternators side. Once into steady rotating then switch in your caps slowly on your alternators side, don't switch in too big steps. After this, tune your RUN cap on your prime mover to the best efficiency. This value will change after loaded and when the alternator begins to generate.



Prime mover is right, alternator is left. Cap bank for both the prime mover and alternator is in center.

After up and running measure your alternators resonance with a meter.

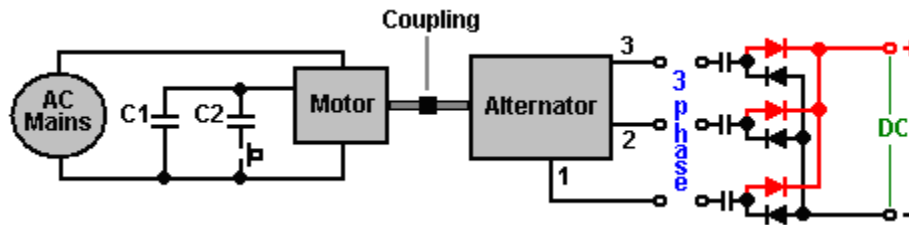


165 volts at 9.7 ACA

You will notice that your VARS out put are well over your prime movers input draw. **Warning! Do not operate above 10KW, or for over extended time period- Hector D Perez Torres-(Designer of the "RV" Roto verter and "TV" Trans-verter devices)-END.**

As mentioned earlier there are various circuits which are currently being used to extract the reactive power. These include Phil's circuits, Raivo's circuits, David Kou's Deliverance circuits, the original looped extraction concept and others. All these circuits can be found in detail in the [Advanced RV research and development compilation](#).

The following circuit is not based on the original RV resonance extraction concepts, but has been included as an alternative option to experiment with. This method is not claimed as being possible for over unity, however you may be able to use it to work with other concepts to get more gains.



Validation

Many engineers along with Panacea-BOCAF have validated the RV's alternator extraction. Panacea has validated David Kou's and Phil's resonance collector. Videos of David's Neon circuit can be found in the video section below. More will be added here as they become available.

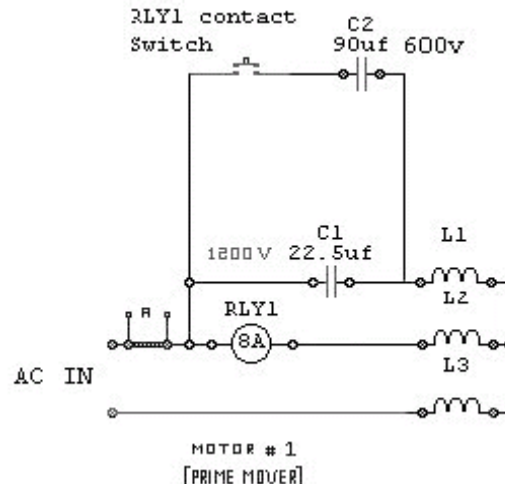
Related Patents and information

RV is open source!

A solid state version of the RV alternator can be found in the [Trans-verter](#) device.

Faculty information

In the beginning of the RV operation by the capacitor vectors the current and voltages into a rotation. At the start we have 2 wires AC input and we use capacitor to create the 3rd phase. The chosen (vectoring) capacitor puts voltages (or current) to rotate, all phases 120deg ($3 \times 120 = 360$). In a stand-alone system, **the key to operation is the presence of capacitance. This gives electricity somewhere to "go" without the capacitors acting as a load.** Thus enabling current to flow in the motor and get it all excited.



The rotor stator windings are wired in Y configuration and are having 3 terminals. We are feeding 2 of these directly with some sinusoidal voltage, which creates some current in 2 of the stator coils (they are connected in series in case of Y-connection). This current in these coils will lag the applied voltage by 90 degrees due to the inductive nature of these windings. The third terminal is fed through a capacitor. This compensates the lagging of current (a current which is going through a capacitor will be leading the applied voltage by 90 degrees) in the third stator coil. There will be created a rotating magnetic field in the stator windings, which will induce the current in initially static squirrel cage rotor windings.

The squirrel cage can actually be considered as a transformer secondary winding, which is in "shorted" state when the rotor is just starting its rotation. And what happens when you short a transformer? Its primary virtual inductance (and thus the total impedance) decreases very much and lot of current will be needed from the power source. Point is that to maintain this rotating magnetic field in the stator when the rotor is just accelerating, we have to supply a lot of current to ALL of the stator windings.

That's why we need much bigger capacity for the start cap - $X_c = 1 / (2 * \pi * f * C)$ - we are having constant frequency and in order to pass more current to the third coil also we need to decrease the reactive resistance of the capacitor, thus we need to increase the capacitor's value. So we will use the start cap that is able to pass almost similar amount of current to the third stator coil also.

Now when the rotor comes up to speed, the rotating magnetic field of the stator will cut less and less. The squirrel-cage windings and the virtual transformer shorting effect decreases and thus the needed current from the power source also decreases. Now when we still have the big start cap in place, then it's X_c (reactive capacitance) will be so small when compared with the third stator winding's X_L (reactive inductance $X_L = 2 * \pi * f * L$), that the total current in the third winding will be mostly determined by this X_L value and thus the current in first two stator coils and third stator coil will be almost in the same phase, thus killing the rotating magnetic field that should be produced by the stator for normal operation for this kind of motor.

Now we need to disconnect the start cap and keep only the much smaller run cap, which will restore the properly rotating field in the stator (the cap creates the needed phase shift for current in the third winding). This advice is valid only for the prime mover in UNLOADED CASE (the case when we do not have drag on the alternator from resonance). The values of the capacitors and components are specific to the motor size used.

The starting cap is 100 to 200uF, the running cap is from 7 to 40uF (370V oil caps). Starting cap is to give a boost from 0. Big motors require it to acquire torque to move the rotor mass plus alternator mass to rotational RV effect speed. The run capacitor is chosen as to maintain best 120 degree rotation within the 3PH windings under the intended target load.

This is what Hector regards as a high Q (reactive power) semi resonant state. The loaded motor is a bit similar to a starting but unloaded motor - you need especially to tune the caps so, that the semi-resonance takes place at LOADED STATE. Then according to the resonance laws and depending on the Q factor, the apparent parallel LC circuit resistance can be many times bigger than the individual XL or XC (and so the consumed power from the power supply is minimal). At the same time very big circulating currents will be existing in the same parallel LC circuit (motor windings). So the effect will be such: when the RV prime mover is running idle, then it will consume some amount of power and its total resistance is mainly determined by the XL of the windings.

Review and summary of prime mover operation:

In the prime mover he is connecting the windings in series (to 480V mode), but driving the motor only from 110V grid (operating at $\frac{1}{4}$ of the voltage) this series-connection further helps to reduce input current. **The HI impedance and 3rd phase generation create a transformer alike operation were 1/10 power usage can be attained at no load.**

Introduction to the alternator system

The PM (prime mover) is a parallel resonant circuit configuration (when connected to the alternator) When properly tuned, it should have a PF of as close to 1 as you can get. A PF of 1 is when the reactive components C&L cancel each others impedance and the apparent power = the true power. In a parallel resonant circuit the impedance as seen from the source goes to a high level (PM unloaded). When the PM is loaded more true power is dissipated so the impedance goes down. With the PM under load you have to retune the C box for best PF (closest to 1). For the alt circuit we are dealing with a series resonant circuit configuration. In a series resonant circuit the source sees minimum impedance at resonance.

The alternator side

Now we are connecting the RV prime mover with another identical motor to become the alternator side. As we need to achieve a parallel resonance condition. (or nearly such kind of resonance condition) in the prime mover (when the RV alternator part is loaded with needed load), so that the consumed power from the power supply will be minimal.

When we are loading the RV primary with some mechanical force (like loaded alternator for example), we are reducing the rotors speed, the revolving stator field will cut more of the squirrel cage windings, the transformer-kind-of loading effect increases and stator windings virtual resistance decreases. Your goal is to find a proper run cap for this proper loaded state of operation to achieve such state, that the consumed current from power source would be minimal.

When loading the RV prime mover, we will get closer to resonant state and the current that is consumed from the power supply, WILL NOT increase linearly with loading, but may even DECREASE due to the fact, that the overall system resistance might be several times bigger due to high Q non-linear effect.

The opposite is true to alternator part - there you will want to create maximum current in stator windings and also maximum voltage in stator windings and all this without causing TOO much drag to the prime mover. So basically with RV you need to tune 2 caps, the alternator cap and also the run cap. First use a bit bigger run cap, get the alternator to properly generate (by selecting/changing the value of alternator's vectoring cap) without bogging down the prime mover.

Also you need to do the tuning in the LOADED state, where some useful load is also connected to the alternator. So, when the alternator works and load is powered, then tune also the prime mover's run cap to the minimal value of consumed current from the power supply (of course you need to keep the alternator running too, so reducing the run cap too abruptly can cause the prime mover to lose too much of it's driving power and alternator might stop).

The essence of RV is not running on minimal current if idle. The essence is to have 2 motors connected, one as motor and the other as generator. A load will be connected to generator (having it's dual windings in parallel, thus low Q, motor part has it's dual windings in series => high Q, big inductivity) and only then the motor part's run cap is TUNED to MINIMAL MOTOR CURRENT WITH DESIRED LOAD.

Now we have a High Q narrowband motor part driving low Q wideband alternator part with desired load. Motor part will be tuned to resonance and this resonance will contribute a lot of mechanical power to the alternator part while consuming minimal power from the power supply. The motor part should have U voltage driving $4*U$ rated windings, this gives some headroom for resonant rise and resonant amplification effects without the irons saturating.

If run without load with the same run cap, the motor part will not have minimum current because C_{run} for loaded case is bigger than C_{run} for idle case. So in idle mode the RV primary's input current will be actually capacitive instead of inductive as with normal motors. But when loaded, the sweet point is attained where the $PF=1$ and resonant current amplification occurs and motor torque will be much bigger than normally expected with this low input voltage.

Another aspect with the RV is that the second motor (generator) can be set to semi-resonate at a reasonably hi virtual power. In contrast to the PM which is an example of a parallel resonance tuned to $PF=1$ under load, the generator exemplifies a series resonance and will have max current & minimal impedance when a cross phase cap is adjusted towards resonance. The virtual power in the alt vs the

cap adjusted pf=1 power in the Prime Mover can easily exceed 10:1.. As theory goes a percentage of the virtual power can be extracted to a real load with out reflecting back to the PM.

The RV by Hector

One of ROTOVERTER "applications" is POWER factor Correcting. The RV Technology is not BASED on "Power factor correcting" but can be used for Power factor correcting. The Rotoverter ROTOCONVERSION ,is "NEW" in the sense it brings RE (radiant energy) "Tesla's "radiant energy"" from a theoretical Pseudoscientific term to ONE book justifiable by POWER engineering and RADIO FREQUENCY engineering. Being RE (Radiant Energy) Equal to RF (Radio frequency) where in engineering we can STATE.

ROTOCONVERSION is the APLICATION of RADIO ENGINEERING to POWER ENGINEERING in electric motor operation were motors work as true energy transformation devices responding to power needs of a load being tuned efficiently to the energy source.

ROTOVERTER by definition is a power on demand ELECTRICAL to mechanical energy TRANSFORMER. Saving OVER 90% of the otherwise WASTED and NON-used energy of a conventional designed motor .Rotoverter is a tool to DEMONSTRATE ROTOCONVERSION effect, rotary transformation of electrical energy to other forms of energy Be Radio Frequency (radiant), Electrical power , thermal, Aethereic, mechanical, gravitational , acoustic , photonic & others .

RV is a "discovery" on power management.. A tool for R&D It demonstrates that the OVERUNITY effects of many claimed OVERUNITY devices are due to MECHANICS of TRANSFORMATION, well justified by thermodynamic LAW, being STOCHASTIC resonance .Experiments done BY US NAVY the first undeniable evidence that energy entering a system (like a weak radio signal) can be amplified by ambient noise into a signal exceeding the input energy one (Search stochastic energy GAIN)NASA, being SUCH the demonstrative case, The existence of mechanics that contribute to ENERGY amplification within a system and such being gained from ambient system environment ,Over unity is well justified within standard thermodynamic equations.

$E_{in} + (E_{ambient})_{Equal} = Energy_{out} > (exceeds\ energy\ in)\ COP > 1$

This opens a new era of power management and transformation science.

RV efficiency had exceeded the standard engineering base making already possible the USE of acquired energy from the ambient were self energy sustained units had being already made & tested. In ENERGY SAVINGS applications alone RV can reduce petrol usage by 46% worldwide, not FREE energy but SAVED ENERGY. The beauty is , it's so simple taken to BASIC form it can be replicated & built By anyone with basic electrical skills.

Suggested Reading on radiant energy from the RV perspective

[RE-OU -v6.1](#)

[Advanced RV research and development compilation](#)

Eric Dollards 4 quadrant theories for extracting 95% of the reactive power through complex RLC processes – **Thanks to Peter Lindemann!**

Research links

<http://www.panacea-bocaf.org/rotoverter.htm>

<http://peswiki.com/index.php/Directory:Rotoverter>

<http://www.theverylastpageoftheinternet.com/ElectromagneticDev/arkresearch/rotoverter.htm>

Technical support groups

<http://groups.yahoo.com/group/EVGRAY/>

<http://tech.groups.yahoo.com/group/RVreplication/>

Videos

Panacea's [Roto verter Neon Test](#)

Credits

To EVGRAY yahoo group and all open source RV engineers!

If you are able to contribute to this document in ANY way, IE- replication details, faculty info and or additional data please [contact the non profit organization](#).

<http://www.panacea-bocaf.org>

<http://www.panaceauniversity.org>