



RON BRANDT'S PERM-MAG MOTOR

by

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Ron Brandt began building motors and radios in the Third Grade. A few years later, he began making trips to the junk yards to collect all the cobalt magnets, coils, ball bearings, rotors, and steering columns from wrecked Model T's. His father called him "The Scavenger." This was back in the early 30's in Trout Lake, Washington, near the base of Mt. Adams. From these parts, he made even more sophisticated motors and many unusual electrical devices.

He joined the Navy at an early age and soon became an instructor in Math and Electronics. He taught students and co-mingled with Navy personnel who were involved with the Philadelphia Experiment. This experience really sparked his electronic curiosity. He spent 35 years working for the International Brotherhood of Electrical Workers, and on every new job site, he would bring along his 20' truck van with all his experimental motors, switching devices and controllers and work on them in the off hours.

With the advent of the gas wars of the early 70's, Ron built his first electric car, converting a '66 Dodge Dart to electric. The motor was a 24-volt, 32 HP starter generator off of a B52 bomber. He designed and built a 2-tank, 24-volt resonant circuit, each side, or tank, had 3 batteries. He drew sequential power off each tank with an oscillating resonant current using Navy surplus transistors and diodes. (See Diagram 1.) This circuit was presented to the International Tesla Conference in Colorado Springs by John Bedini, in 1984.

He drew positive power out of the negative posts of each side. By taking only 24 volts sequentially off the two a 36-volt battery tank by sequentially drawing power off each side, AC current was produced and hence converted back to DC with a Germanium rectifier. He stated, "If you can achieve resonance (about 900 Hz) with the controller and the metal alloy in the battery (which he did with his first set of batteries), it takes a long time to run the batteries down." He demonstrated this technology in the Dodge Dart at an Eastern Washington site by driving over 400 miles on a single charge. Some Allis Chalmers engineers observed the feat and said it was not possible, and that he was cheating. But

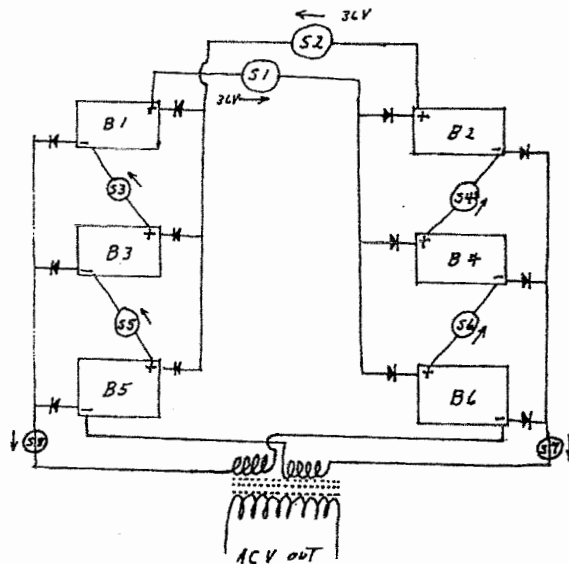


Figure 1. Brandt's 24-volt output resonant circuits.

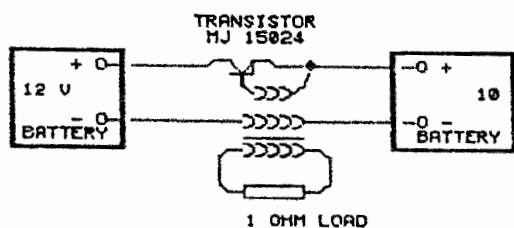


Figure 2. The Brandt-Tesla Switch Diagram BEFORE Resonance. To raise the voltage from 11.51 to 12.45V took 5 seconds. NOTE: 1-ohm resistor remained cold after 15 minutes of runtime! CREDIT: Experiments with Kromrey and Brandt-Tesla Converter

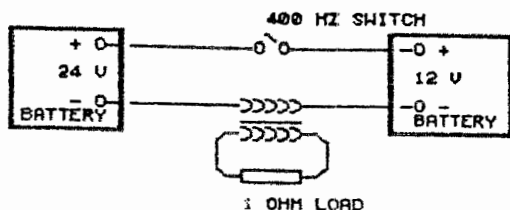


Figure 3. The Brandt-Tesla Switch AFTER Resonance is achieved. To raise the voltage from 1.7V to 10.24V took 1 minute 5 seconds. NOTE: 1-ohm resistor remained cold after 15 minutes of runtime! CREDIT: Experiments with Kromrey and Brandt-Tesla Converter

Ron knew better. A few years later, he tried the same technology in his car, only different batteries, but was unable to achieve resonance and hence got only twice the expected distance out of his car, about 100 miles. He thinks the batteries made later were not uniform to achieve resonance.

In the 1980's, Ron started perfecting an advanced magnetic motor and controller from the experience he obtained in constructing an (Ecklin) Variable Reluctance Motor Generator from the ground up with the assistance of Dr. John Jacobs, using the theory from Ecklin's Patent #4,567,407. This particular motor achieved overunity of about 105%, but Ron wasn't satisfied and thought a more efficient motor could be built.

He learned that in a magnetic field, the strength of the field *and* how fast it collapses determines the amount of energy that can be recovered. The faster the magnetic field collapses, (back EMF) the more energy can be recovered for reuse.

In the Perm-Mag Motor, he isolated the rotor from the magnetic field for a more efficient collection of back EMF. The multi-stator ring is supported by six non-magnetic mounting studs attached to the aluminum housing back plate. The stator is selectively

triggered by a peripheral coil activator to provide the proper magnetic phase relationship. With this unique design, there is no need for commutators or brushes which cause arching and sparking, common in most electric motor designs. The magnetic flux path is reduced by the low iron mass of the stator, allowing faster switching times, guaranteeing the highest efficiency.

The Power Commutator has 3 elements:

1. The magnetic band supports neo-magnets which transmit their rotational power to the commutator plate.
2. The commutator plate serves as a mounting surface for Perm-mag actuators for "Hall Effects" triggering as well as a mounting surface for an air cooling system.
3. The insulated shaft drive collar is made of non conductive plastic.

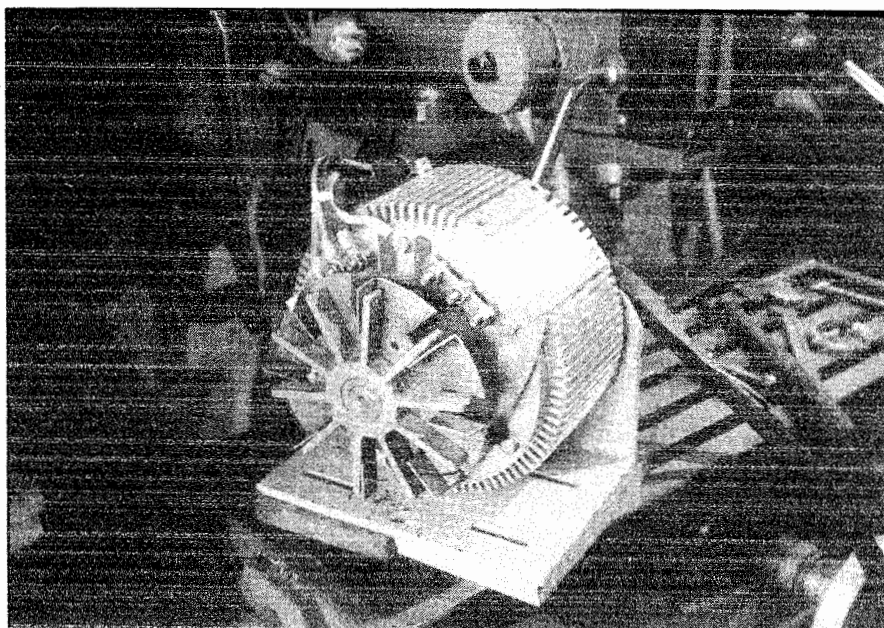
Most elements of the motor design are non-magnetic, which tends to shunt all the magnetic energy into the desired use of motion conversion. The exterior housing is made of materials of high magnetic resistance (high temperature aluminum or non-magnetic stainless steel).

The Perm-Mag motor is one of the most flexible electromotive devices developed, light in weight,



Ron Brandt and the main frame of his Ecklin Variable Reluctance Generator. Credit: Bruce Meland

10-HP Perm-Mag Motor Prototype. This miraculous machine only weighs 10lbs!
Credit: JW McGinnis



and small in size with wide ranges of power, speed, and direction which allows for easy construction, interchangeability, and repair.

In conclusion, the high efficiency of the Per-Mag motor exhibits one of the most efficient watt per horse power unit conversion ratings in the industry. The fact that Ron Brandt's Perm-Mag Motor does not create torque with electricity, but instead allows the motor magnets to create the torque by efficiently directing the magnetic flux makes the following features possible:

1. Complete variable speed control at rated horsepower.
2. Complete variable horsepower output at rated speed.
3. Complete variable braking capability from a dead stop to slow retardation.
4. Complete variable reversing from instantaneous to a slow, gradual direction change.
5. A wide range of input DC Voltages: from .5v (small designs) to application as high as 4160v.
6. Either manual or computer control.
7. Local or remote operation.
8. Can be used in high-risk environments where other types spark.
9. Has small physical size per unit horsepower.

More specific details of the Perm-Mag Motor will be forthcoming when the patents and market negotiations are completed. Ron will be at the upcoming ExtraOrdinary Science Conference '95 in July. **BM**



Ron Brandt holding a six-pole rotor of an Ecklin variable reluctance motor-generator. There's a two-pole rotor in the box. Credit: Bruce Meland