NetGain Motors, Inc.
800 South State Street ⁄ Suite 4 ⁄ Lockport, IL 60441 ⁄ 630-243-9100 ⁄ 630-685-4054 (FAX)

# USEFUL FORMULAS & CONVERSIONS

| *DIRECT CURRENT(DC)* | ***Conversion Factors<br>Average Energy Content of Various Fuels*** |
|---|---|
| ***I* = current(amps)** | 1 Kw hour of electricity = 3413 BTU's |
| ***V* = voltage(volts)** | 1 cubic foot of natural gas = 1,008 to 1,034 BTU |
| ***P* = power(watts)** | 1 therm of natural gas = 100,000 BTU |
| ◆ **CURRENT:**<br>■ ***I = P/V*** | 1 gallon of liquefied petroleum gas (LPG) = 95,475 BTU |
| ◆ **VOLTAGE:**<br>■ ***V= P/I*** | 1 barrel of crude oil = 5,800,000 BTU |
| ◆ **POWER:**<br>■ ***P=V*I*** | 1 gallon of residual fuel oil = 149,690 BTU |
| **746 Watts = 1 Horsepower<br>or<br>HP = Watts / 746** | 1 gallon of middle distillate or diesel fuel oil = 138,690 BTU |
| $HP_M = \frac{(RPM) * (Lbs\text{-}Ft.)}{5252}$ | 1 gallon of gasohol(10% ethanol, 90% gasoline) = 120,900 BTU |
| $HP_E = \frac{(Volts) * (Amps)}{746}$ | 1 gallon of kerosene or light distillate oil = 135,000 BTU |
| **Watts = Volts * Amps** | 1 gallon of ethanol = 84,400 BTU |
| $Amps = \frac{(HP_m)}{(ME)} * \frac{(746)}{(V_T)}$ | 1 gallon of E-85(85% ethanol, 15% gasoline) = 90,500 BTU |
| **ME = Motor Efficiency as a decimal** | 1 gallon methanol = 62,800 BTU |
| **$V_T$ = Terminal Voltage** | 1 gallon of gasoline = 125,000 BTU |
| | 1 gallon of crude oil = 138,095 BTU |
| | 1 pound of coal = 8,100 to 13,000 BTU |
| | 1 ton coal = 16,200,000 to 26,000,000 BTU |
| | 1 ton wood = 9,000,000 to 17,000,000 BTU |
| | 1 standard cord of wood = 18,000,000 to 24,000,000 BTU |
| | 1 face cord of wood = 6,000,000 to 8,000,000 BTU |
| | 1 pound of low pressure steam (recoverable heat) = 1,000 BTU |