CLAIMS

1. An internal combustion engine comprising:

a compression assembly that is configured to compress working fluid; and

a combustion assembly comprising:

a combustion housing having an interior surface defining an interior area;

a power rotor positioned within the interior area of said combustion housing, said power rotor having a cylindrical exterior surface displaced from said interior surface of said combustion housing, thereby defining a combustion chamber; and

a first expansion member attached to and extending from said exterior surface of said power rotor towards said interior surface of said combustion housing, thereby segmenting said combustion chamber into an expansion section and an exhaust section,

wherein said combustion assembly is configured to generate power from expansion of the working fluid, and

wherein the engine enables the ability to independently configure intake compression to power exhaust ratios during operation of the engine.

2. The engine of claim 1, wherein said combustion assembly further comprises:

a combustion isolator extending at least partially within said interior area of said combustion housing, said combustion isolator defining a first receptacle that is configured to receive said first expansion member,

wherein said power rotor rotates in a first direction,

wherein said combustion isolator rotates in a second direction, said second direction being opposed to said first direction, and

wherein rotation of said combustion isolator is synchronized to rotation of said combustion rotor such that said expansion member moves in and out of communication with said first receptacle of said combustion isolator as said expansion member rotates past said combustion isolator, thereby facilitating continuous unidirectional rotation of said power rotor.

3. The engine of claim 2, further comprising:

a drive shaft coupled to said power rotor and extending out of said combustion chamber; and

a venting system in fluid communication with a first location of the combustion housing, the first location being positioned between said combustion chamber and an exterior surface of said drive tube so as to inhibit fluid from migrating out of said combustion housing along said exterior surface of said drive tube.

4. The engine of claim 1, wherein an amount of working fluid compressed during a first compression stroke of the engine is greater than an amount of working fluid expanded during a first combustion stroke of the engine, the first compression stroke being driven by power generated from the first combustion stroke.

5. The engine of claim 4, wherein the amount of working fluid expanded during the first combustion stroke is 2/3 of the amount of working fluid compressed during the first compression stroke.

6. The engine of claim 4, wherein the working fluid enters the combustion chamber at a first gage pressure, the first gage pressure being greater than fifty pounds per square inch.

7. The engine of claim 4, wherein the compression assembly is configured to be moveable in and out of a compressing configuration, wherein the compression assembly is configured to compress working fluid when it is in the compressing configuration, wherein the compression assembly is configured such that it does not compress working fluid when it is not in the compressing configuration, thereby reducing the amount of power required to drive the compression assembly during such times, and wherein independently configuring intake compression to power exhaust ratios comprises moving the compression assembly in and out of the compressing configuration.

8. The engine of claim 7, wherein the compression assembly defines a relief port that is moveable between a closed configuration and an open configuration, thereby moving the compression assembly in and out of the compressing configuration, respectively.

9. The engine of claim 4, further comprising a tank assembly for holding a first amount of the working fluid, the first amount of the working fluid being greater than the amount of working fluid compressed during the first compression stroke.

10. The engine of claim 9, wherein the first amount of the working fluid is more than ten times the amount of working fluid expanded during the first expansion stroke of the engine.

11. A method of generating power from an internal combustion engine, the method comprising:

expanding within a combustion assembly of the engine a first amount of working fluid during a first power stroke of the engine;

compressing within a compression assembly of the engine a second amount of working fluid during a first compression stroke of the engine, wherein the first power stroke of the engine is contemporaneous with the first compression stroke of the engine such that the engine has a first intake compression to power exhaust ratio; and

changing the intake compression to power exhaust ratio of the engine during operation of the engine immediately following the first compression stroke of the engine,

wherein the combustion assembly comprises:

a combustion housing having an interior surface defining an interior area;

a power rotor positioned within the interior area of said combustion housing, said power rotor having a cylindrical exterior surface displaced from said interior surface of said combustion housing, thereby defining a combustion chamber; and

a first expansion member attached to and extending from said exterior surface of said power rotor towards said interior surface of said combustion housing, thereby segmenting said combustion chamber into an expansion section and an exhaust section.

12. The method of claim 11, further comprising moving the compression assembly out of a compressing configuration immediately following the first compression stroke of the engine,

wherein the compression assembly is configured to compress working fluid when it is in the compressing configuration,

wherein the compression assembly is configured such that it does not compress working fluid when it is not in the compressing configuration, thereby reducing the amount of power required to drive the compression assembly during such times,

wherein changing the intake compression to power exhaust ratio of the engine immediately following the first compression stroke of the engine comprises moving the compression assembly out of the compressing configuration, and

wherein moving the compression assembly out of the compressing configuration comprises moving a relief port of the compression assembly from a closed configuration to an open configuration.

13. The method of claim 11, wherein the first amount of working fluid enters the combustion chamber at a first gage pressure, the first gage pressure being greater than fifty pounds per square inch.

14. The method of claim 11, wherein said combustion assembly further comprises:

a combustion isolator extending at least partially within said interior area of said combustion housing, said combustion isolator defining a first receptacle that is configured to receive said first expansion member,

wherein said power rotor rotates in a first direction,

wherein said combustion isolator rotates in a second direction, said second direction being opposed to said first direction, and

wherein rotation of said combustion isolator is synchronized to rotation of said combustion rotor such that said expansion member moves in and out of communication with said first receptacle of said combustion isolator as said expansion member rotates past said combustion isolator, thereby facilitating continuous unidirectional rotation of said power rotor.

15. The method of claim 11, wherein the second amount of working fluid is greater than the first amount of working fluid.

16. The method of claim 15, wherein the first amount of working fluid is 2/3 of the second amount of working fluid.

17. The method of claim 15, further comprising transferring the first amount of working fluid from a tank assembly of the engine to the combustion chamber, the first amount of working fluid being drawn from a third amount of working fluid held in the tank assembly, the third amount of working fluid being greater than the second amount working fluid.

18. The method of claim 17, wherein the third amount of working fluid is more than ten times greater than the second amount of working fluid.