

Circle Ellipse Engine Company  
Ruskin, Florida 33570 USA

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# Pitch Deck for The Circle Ellipse Engine

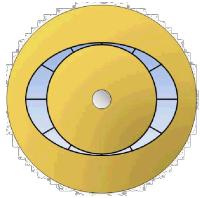
This is not a Software or AI pitch

The Circle Ellipse Engine is a real product  
with high margins and long-term value

All materials and parts are produced in USA

Robert Grisar  
Founder & President

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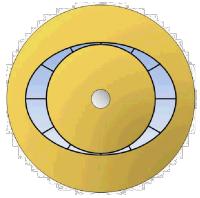


# Presentation Overview & Roadmap

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- Financial Overview
- Product – Circle Ellipse Engine
- Example: High Potential Market
- Go to Market Strategy
- Revenue Streams
- Competition
- Barriers to Entry
- Major Advantages – CE Engine Entry
- Use of Proceeds
- Milestones Accomplished & Planned
- Detail Planning, Execution & Tracking
- Management Team
- Quick Review
- Summary

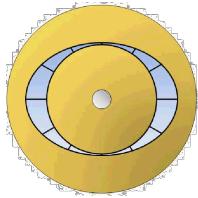
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# Financial Overview (\$K)

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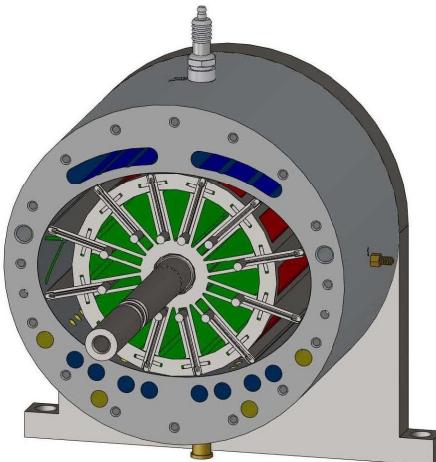
	<u>Year-1</u>	<u>Year-2</u>	<u>Year-3</u>	<u>Year-4</u>	<u>Year-5</u>
Revenue	0	0	400	4,000	40,000
Expense	250	400	400	2,000	20,000
Net Income	-250	-400	0	2,000	20,000



# Product - Circle Ellipse Engine

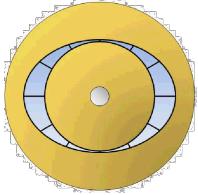
The Circle Ellipse Engine is Compact, Lightweight, and easily scaled from a small lawn mower size to an extreme large container ship size. Its design leverages Lessons Learned from the Mazda - Wankel Engine Development, and addresses all issues of lubrication, cooling, sealing, thermodynamics, and mechanical interfaces.

The Engine is shown with end plate removed. Pseudo color is used to highlight functions: cooling water (blue), air intake & exhaust (yellow), lubrication (green), & combustion (red)



Only five major unique parts: Housing, Rotor, End Plates, Vanes, and Drive Shaft. The engine's small size, weight and cost are possible by elimination of pistons, intake and exhaust valves, rocker arms, lifters, cam shaft, crank shaft, journal bearings, and timing chains.

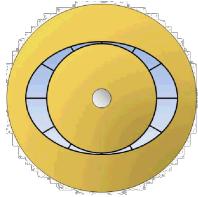
- Only 5 major parts; less than 50 unique parts, including commercial items
- Produces same power as reciprocating engine at half the RPM
- Smaller, lighter, vibration free, high margins
- Energy efficient and reduces emissions
- Solves shortcomings of earlier Rotary Engines



## Example: High Potential Market

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- More than 1 million diesel engines are produced annually in the US
- Diesel engines used for transportation agriculture construction & mining
- Population of US commercial Diesel trucks is over 15 million vehicles
- The annual engine rebuilds and replacements exceeds 250,000 units
- New truck engine replacement costs \$40,000 to \$50,000
- Engine overhaul ranges from \$20,000 to \$40,000
- Plus installation labor of 15 to 30 hours at average \$125/hour
- Same horsepower Circle Ellipse Engine price is half, \$20,000 to \$25,000, with 100% margin
- Potentially just 1% of the annual replacement market, 2,500 engines, is worth more than \$40,000,000
- A detailed business plan is available that documents the cost and schedule to fabricate, test, certify and market the Circle Ellipse Engine



## Example: High Potential Market

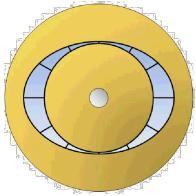
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### **Consider the value of installing a replacement engine in a used truck:**

- Replacing an engine is a great way to extend a vehicle's life, without the more significant expense of buying a new vehicle
- As an example, consider a Mack Truck with an E7 engine.
  - Produced from 1989 to 2005
  - Original vehicle price more than \$200,000 (in 2005 dollars)
  - Known for durability in dump trucks, fire engines and refuse vehicles
  - Rated 325 to 500 horsepower
  - Offered with 1,200 to 1,800 lb-ft torque
- Very few original engines available for rebuild or replacement
- Equivalent Circle Ellipse Engine price less than \$25,000

**AND replacing an engine in an older truck does not require meeting current Federal regulations for emission standards.**

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# Example: High Potential Market

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## Dump Trucks

- More than 145,000 dump trucks in daily use
- Approximately 25% are more than 20 years old
- New dump trucks cost between \$100K to over \$180K depending on size and options



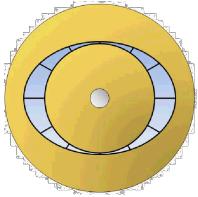
## Fire Engines

- Over 69,000 fire engine pumper + 7,000 aerial apparatus + 76,000 fire suppression
- Approximately 19% are between 20-29 years old + 13% at least 30 years old
- New fire engines cost between \$500K to over \$1M depending on type & customization



## Refuse Vehicles

- Approximately 179,000 in service daily
- About 25% are 20 years old or older
- New garbage trucks cost between \$150K-\$500K depending on model, size & features



# Go to Market Strategy

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## **Build Demonstration Prototype Engine**

- Design is Complete and Validated
- Initial CNC Suppliers Selected
- Fabricate, Assemble, Test, & Certify Working Engine
- Market: Brochures, Web, Social Media, Trade Shows, Direct Contact

## **Initially Leverage Suppliers**

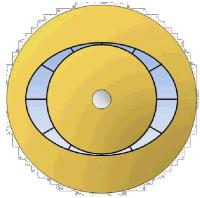
- Decision: Use Vendors for Initial Phases
- Later phases evaluated for cost & risk

## **Build 10 Marketing Engines**

- Needed for durability and reliability tests
- Establishes Learning Curve for future Costs & Tooling
- Contact fleet operators for dump trucks and refuse vehicles

## **Produce Lot I, 100 Units**

- Generate Revenue with high margins
- Establish Position in Competitive Marketplace
- Contact larger cities with aged fire engines

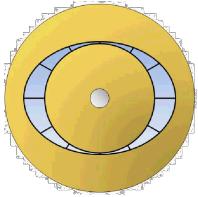


# Revenue Streams (\$M)

	Years after Certification			
	<u>Year-1</u>	<u>Year-2</u>	<u>Year-3</u>	<u>Year-4</u>
Production Lot	Pre-Cert	Lot 1	Lot 2	Lot 3
Planned Units	*10	**100	**1,000	10,000
Diesel Engines	Test Only	0.4	4.0	40.0
New Diesel Installs	TBD			
Gasoline Engines	TBD			
Other applications	TBD			
<b>TOTAL REVENUE</b>	<b>0.0</b>	<b>0.4</b>	<b>4.0</b>	<b>40.0</b>

\* For qualification testing, demonstration, marketing.

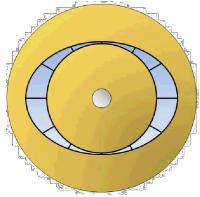
\*\* Since all production is driven by industry standard 3D CNC code, we will qualify multiple sources for manufacturing growth.



# Competition

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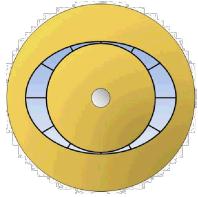
- No known companies in our planned market space
  - Closest company doing anything similar was Mazda
  - Mazda produced 800,000+ for its RX-7s through its implementation of the Wankel Rotary Engine
  - Unfortunately, engine had significant issues with oil consumption & generation of pollutants,
  - Production terminated 2002
- No other company has implemented anything like the Circle Ellipse Engine (USPTO Patent No. 10,570,739)
- Required years to rethink the requirements & solve all design challenges – sealing, friction, thermodynamics, cooling, lubrication
- Patented solution is simple & easily translates into CNC code



# Barriers to Entry

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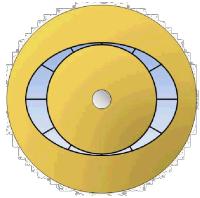
- Reciprocating Engines Perfected over 100+ years
  - Already Exist in Every Platform Application
  - Favored as Low Risk Selection
  - Well-Established Sales, Distribution & Repair Capabilities
  - Proven performance assures 20+ years operation
- Rotary engines are associated with risk
  - Only Mazda Implemented a successful Wankel Engine
  - Withdrawn from Marketplace 2002 due to EPA issues
- Circle Ellipse Engine is an Unknown



## Major Advantages – CE Engine Entry

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- Only 5 major parts
- < 50 unique parts including commercial hardware
- No pistons, camshaft, chains, valves, valve lifters, rocker arms, connecting rods, or wrist pins.
- Size & weight are significantly reduced almost 2/3 when compared to a reciprocating engine of similar horsepower
- Operates at half the RPM of equivalent reciprocating engine
- Designed for 500,000 – 1,000,000 operating hours before maintenance – seal replacement, coating refresh
- Ideal for any application where size, weight and cost are paramount

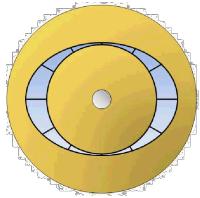


# Use of Proceeds (\$K)

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## Initial Funding Round - Prototype

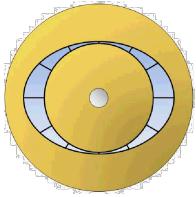
Payroll	\$ 100
Overhead	\$ 20
Capital equipment, hardware & software	\$ 10
Subcontracts	\$ 75
Legal & other professional fees	\$ 0
Travel	\$ 25
Accounts Payable	\$ 0
Marketing & public relations	\$ 20
<b>Total</b>	<b>\$ 250</b>



# Milestones Accomplished & Planned

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Seek Angel & Venture Capital Funding	2 months
Receive \$250K seed money Financing	4 months
Order CNC Services, Commercial Parts	5 months
Receive Fabricated Parts, Assemble, Test	8 months
Certification	11 months
Develop Marketing/Sales Documentation	12 months
Seek / Receive Second Round Financing	13 months
Fabricate 10 LRIP Engines	17 months
Seek / Receive Third Round Financing	24 months
Fabricate 100 LOT 1 Engines	28 months
Break-Even & Very Profitable	36 months



# Detail Planning, Execution & Tracking

## Company

- Distributes Drawing Packages to Fabrication Sources
- Receives/Reviews Vendor Quotations
- Conducts Site Surveys/Related Travel as appropriate
- Awards Prototype Fabrication Orders

## Vendor

- Provides Material Certifications for Verification

## Company

- Orders Catalog Items - bearings, springs, screws, etc
- Conducts In-Process Inspections/Related Travel
- Receives Catalog Items, inspects, forwards to Assembler
- Updates Drawings & Models, as Necessary

## Assembler

- Assembles Prototype Engine (Witnessed)
- Verifies Fitment (Witnessed)
- Verifies Static Sealing (Witnessed)

## Company

- Reworks design & parts to address shortcomings
- Updates Drawings & Models as Necessary

## Test Vendor (Witnessed Actions)

- Conducts Pressurized Lubrication Oil Flow
- Disassemble & Checks for Leakage
- Verifies Pressurized Cooling Flow
- Disassembles & Checks for Leakage

## Test Vendor (Witnessed Actions)

- Conducts Spin Test (Witnessed)
- Disassembles/Checks-Scraping, Gouging, Wear
- Makes Adjustments as Necessary
- Measures Friction Loss

## Company

- Compares Measured Force Required versus Ideal

## Test Vendor

- Makes Directed Adjustments as Necessary (Witnessed)
- Conducts Compression Test (Witnessed)

## Company

- Compares Measured Compression versus Ideal

## Test Vendor

- Make Adjustments as Necessary (Witnessed)

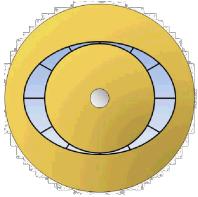
## Engine Transferred to Test Facility for Certification Testing

## Dynamometer Vendor

- Mounts/Connects Engine for Testing (Witnessed)
- Prepares Independent Certification Report

## Company

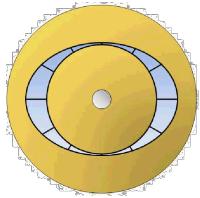
- Prepares Documentation
- Develop Specification Sheets/Brochures
- Present Engine brochures/specs to prospective clients
- Weekly Reports to Investors
- Monthly Financial / Progress Reports to Investors



# Management Team

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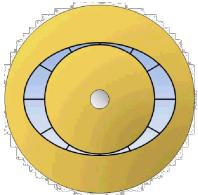
- Founder & President, Robert Grisar, & only employee
- 30+ years experience with reciprocating internal combustion engines & U.S. Weapon System propulsion
- Consultant to RadMax Technologies, Inc, Subsidiary of Reg Technologies, Inc., a public company formerly trading on the TSX exchange as REGRF
- Served as Board Member, VP Engineering, Patent Holder
- Awarded several US, Canadian, & EU patents for RadMax engine
- Prepared & delivered technical & management briefings to dozens of high-level executives at major engine manufacturing companies
- Prior, founder & president of the Military Parts Reinvention Network (MILPARTS), dedicated to support our War Fighters, without limit



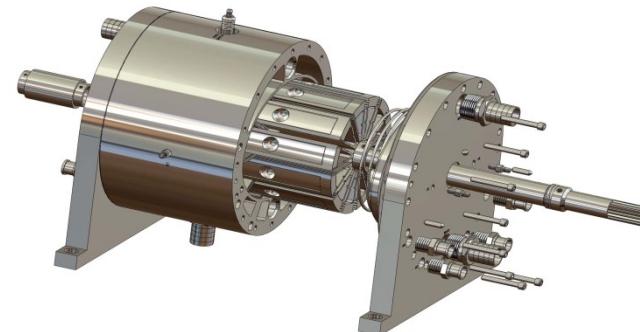
# Quick Review

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Financial Overview	\$40M revenue in Y4, \$20M net income
Products	Engine is Scalable & supports multiple applications
Markets	Initially, replacement engines; later new installs
Customer Strategy	Fabricate & Demonstrate Working Prototype
Revenue Streams	Sales to installers
Competition	None
Barriers to Entry	Unknown ... advertise, educate, demonstrate
Use of Proceeds	Complete prototype fabrication, assembly, test
Management Team	Sole Proprietorship, leveraging subcontractors
Milestones	Demonstration prototype engine & certification
Investment	\$1.0M (3 rounds) from knowledgeable investors



# Summary



## Reciprocating Engine

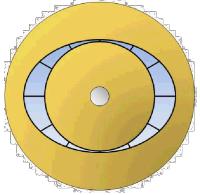
Established Performance  
Over 1,000 parts  
RPM: 2,000  
Complex and expensive

## Mazda Rotary Engine

Requires Rebuild at 50,000 mi.  
Over 400 parts  
RPM: 6,000 (central hub)  
Could not meet EPA requirements

## Circle Ellipse Engine

Less than 50 parts (5 unique)  
Average RPM: 1,000  
Reduced Size, Weight & Cost  
Replacement Engines do not  
need EPA certification



# Questions / Feedback

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## Contact Info:

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