



ARIES PROPULSION RESEARCH LABS (APR Labs) **Energy Efficiency Technology**

APR LABS INTRODUCES OMNI-DIRECTIONAL PROPULSION (ODP)

APR Labs recently announced a new propulsion technology that could dramatically change the way we look at efficiency of vehicles. APR Labs has labeled this new technology omni-directional propulsion (ODP) due to its unique property of being able to change its direction of movement in 360 degrees. Another unique property of this new form of propulsion is that it does not alter its external environment to create movement. This increases efficiency and decreases drag, where the end result is better fuel economy.

EXPLANATION OF EFFICIENCY

The removal of key components such as propellers from boats and drivetrains from vehicles could increase the efficiency of any moving vehicle up to 30% or more. The complex drivetrain of a car can consist of a transmission, clutch or torque converter, differential, trans-axles, and wheel assemblies. All of these components can take from 20% to 30% of the total energy required by an engine to create motion. The friction of these working parts all meshing together can create enough drag to reduce the total output by at least 30%. Also, the simple action of a boat's propeller moving through the water not only creates thrust against the water but also creates a significant amount of drag. This drag is a normal bi-product of thrust on all propellers including boats, airplanes, and helicopters. Omni Directional Propulsion (ODP) has no propellers, wheels, jets, fans, rockets, or any forced air flow to create movement so there is no loss of efficiency due to drag. All thrust and movement is created internally to the mechanism with few moving parts. ODP converts a rotating mass into forward motion by applying torque in incremental degrees of the rotation.

ODP TECHNOLOGY BENEFITS

- Increased energy efficiency on drivetrains
- Lowered exhaust emissions
- Can be used in all types of vehicles that are used in water, air, ground or in the vacuum of space (i.e. boats, cars, submarines, airplanes, satellites, etc.)

- Has the potential to make air travel faster due to ODP's almost unlimited speed.

IN CONCLUSION

ODP is a highly innovative solution for the increasing fuel costs and increasing public awareness of environmental issues. Our research indicates that ODP is unique and could offer significant advantages over all available technology in existence today. The lack of moving parts lessening drag and the almost limitless speed potential makes ODP one of the most exciting new propulsion designs that has hit the market in recent years.